# SAF-RC-051 100 & 300 Area Component of the RCBRA - Incremental Soil Sampling FINAL DATA PACKAGE

# COMPLETE COPY OF DATA PACKAGE TO:

Jill Thomson

H0-23

KW 6/8/06

Jeanette Duncan

H9-02

KW 6/8/00

RECEIVED
JUN 2 2 2006

**EDMC** 

# **COMMENTS:**

**SDG K0302** 

SAF-RC-051

Rad only

Chem only

X Rad & Chem

X Complete

Partial

Waste Site: 100-H Riparian #9



June 5, 2006

Ms. Joan Kessner Washington Closure Hanford 3190 George Washington Way MSIN H9-02 Richland, WA 99352

Reference:

P.O. #630

Eberline Services R6-04-092-7419, SDG K0302

Dear Ms. Kessner:

Enclosed is the data report for five solid (soil) samples designated under SAF No. RC-051. The samples were received at Eberline Services on April 12, 2006. The samples were analyzed according to the accompanying chain-of-custody document.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion

Senior Program Manager

Melessi Mam

MCM/njv

Enclosure: Data Package

**Case Narrative** 

Page 1 of 1

#### 1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K0302 was composed of five solid (soil) samples designated under SAF No. RC-051 with a Project Designation of: 100 & 300 Area Component of the RCBRA-Incremental So.

The strontium, thorium, and uranium aliquots were taken from 30-gram leachates of the respective samples and not from full dissolutions. The gamma aliquots were taken from the samples as received.

The samples were received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. All results were transmitted to WCH via e-mail on June 2, 2006.

## 2.0 ANALYSIS NOTES

## 2.1 Total Strontium Analysis

No problems were encountered during the course of the analyses.

## 2.2 Isotopic Thorium Analysis

No problems were encountered during the course of the analyses.

## 2.3 Isotopic Uranium Analysis

No problems were encountered during the course of the analyses.

#### 2.4 Gamma Spectroscopy

No problems were encountered during the course of the analyses.

#### **Case Narrative Certification Statement**

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Melissa C. Mannion
Senior Program Manager

<u>6/5/6</u> Date

## EBERLINE SERVICES / RICHMOND SAMPLE DELIVERY GROUP K0302

SDG 7419 Contact Melissa C. Mannion

Client Hanford Contract No. 630 Case no SDG K0302

# SUMMARY DATA SECTION

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Prepared by

Mussa Mammi

Reviewed by

SAMPLE DELIVERY GROUP K0302

SDG 7419 Contact Melissa C. Mannion

#### REPORT GUIDE

Client <u>Hanford</u>
Contract <u>No. 630</u>
Case no <u>SDG\_K0302</u>

#### ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

#### SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

#### PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

#### WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

#### METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

## LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

REPORT GUIDES
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SAMPLE DELIVERY GROUP K0302

SDG <u>7419</u>

Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG\_K0302

## ABOUT THE DATA SUMMARY SECTION

#### DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

#### MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

#### DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

#### METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

#### REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

REPORT GUIDES

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SUMMARY DATA SECTION

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SAMPLE DELIVERY GROUP K0302

SDG 7419
Contact Melissa C. Mannion

# SAMPLE SUMMARY

Client <u>Hanford</u>
Contract <u>No. 630</u>
Case no <u>SDG K0302</u>

CLIENT SAMPLE ID	LOCATION	MATRIX LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
Jlijki	100-H RIPARIAN #9	SOLID	R604092-01	RC-051	RC-051-112	04/10/06 09:00
J11JK2	100-H RIPARIAN #9	SOLID	R604092-02	RC-051	RC-051-112	04/10/06 10:38
J11JK3	100-H RIPARIAN #9	SOLID	R604092-03	RC-051	RC-051-112	04/10/06 12:00
J11JK4	100-H RIPARIAN #9	SOLID	R604092-04	RC-051	RC-051-112	04/10/06 13:56
J11JK5	100-H RIPARIAN #9	SOLID	R604092-05	RC-051	RC-051-112	04/10/06 14:00
Method Blank		SOLID	R604092-07	RC-051		
Lab Control Sample		SOLID	R604092-06	RC-051		
Duplicate (R604092-01)	100-H RIPARIAN #9	SOLID	R604092-08	RC-051		04/10/06 09:00

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SAMPLE DELIVERY GROUP K0302

SDG 7419
Contact Melissa C. Mannion

QC SUMMARY

Client	Hanford
Contract	No. 630
Case no	SDG K0302

ос ватсн	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	SOLIDS	SAMPLE	BASIS AMOUNT	DAYS SI		LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7419	RC-051-112	J11JK1	SOLID	100.0	491 g	<b></b> -	04/12/06	2	R604092-01	7419-001
		J11JK2	SOLID	100.0	432 g		04/12/06	2	R604092-02	7419-002
		J11JK3	SOLID	100.0	432 g		04/12/06	2	R604092-03	7419-003
		J11JK4	SOLID	100.0	<b>4</b> 31 g		04/12/06	2	R604092-04	7419-004
		J11JK5	SOLID	100.0	438 g		04/12/06	2	R604092-05	7419-005
		Method Blank	SOLID				•	•	R604092-07	7419-007
		Lab Control Sample	SOLID						R604092-06	7419-006
		Duplicate (R604092-01)	SOLID	100.0	491 g		04/12/06	2	R604092-08	7419-008

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Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-QS</u>

Version <u>3.06</u>

Report date <u>06/02/06</u>

SAMPLE DELIVERY GROUP K0302

SDG	7419			
Contact	Melissa	c.	Mannion	

## PREP BATCH SUMMARY

Client	Hanford	
Contract	No. 630	<u> </u>
Case no	SDG K0302	

TEST	MATRIX	METHOD	PREPARATION BATCH		CLIENT	MORE		NCHETS A			QUALI- FIERS
Alpha TH	Spectros SOLID	copy Thorium, Isotopic in Solids	7181-063	5.0	5		•	1	1	1/1	
U	soLID	Uranium, Isotopic in Solids	7181-063	5.0	5			1	1	1/1	
Beta SR	Counting SOLID	Total Strontium in Solids	7181-063	10.0	5			1	1	1/1	
Gamma GAM	Spectrose SOLID	copy Gamma Scan	7181-063	15.0	5			1	1	1/1	

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.

Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

PREP BATCH SUMMARY
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SAMPLE DELIVERY GROUP K0302

SDG 7419
Contact Melissa C. Mannion

## WORK SUMMARY

Client Hanford
Contract No. 630
Case no SDG K0302

CLIENT SAMPLE I	D	MATRIX	LAB SAMPLE II	)		SUF-				
CUSTODY	SAF No		RECEIVED	PLANCHET	TEST	FIX	ANALYZED	REVIEWED	BY	METHOD
J11JK1			R604092-01	7419-001	GAM		05/23/06	05/23/06	css	Gamma Scan
100-H RIPARIAN	#9	SOLID	04/10/06	7419-001	SR		05/11/06	05/17/06	MWT	Total Strontium in Solids
RC-051-112	RC-051		04/12/06	7419-001	TH		05/23/06	05/30/06	MWT	Thorium, Isotopic in Solids
				7419-001	ט		05/12/06	05/31/06	MWT	Uranium, Isotopic in Solids
J11JK2			R604092-02	7419-002	GAM		05/23/06	05/23/06	CSS	Gamma Scan
100-H RIPARIAN	#9	SOLID	04/10/06	7419-002	SR		05/11/06	05/17/06	MWT	Total Strontium in Solids
RC-051-112	RC-051		04/12/06	7419-002	TH		05/23/06	05/30/06	MWT	Thorium, Isotopic in Solids
				7419-002	ט		05/12/06	05/31/06	MWT	Uranium, Isotopic in Solids
J11JK3			R604092-03	7419-003	GAM		05/23/06	05/23/06	CSS	Gamma Scan
100-H RIPARIAN	#9	SOLID	04/10/06	7419-003	SR		05/11/06	05/17/06	MWT	Total Strontium in Solids
RC-051-112	RC-051		04/12/06	7419-003	TH		05/23/06	05/30/06	MWT	Thorium, Isotopic in Solids
				7419-003	ט		05/12/06	05/31/06	MWT	Uranium, Isotopic in Solids
J11JK4			R604092-04	7419-004	GAM		05/23/06	05/23/06	css	Gamma Scan
100-H RIPARIAN	#9	SOLID	04/10/06	7419-004	SR		05/11/06	05/17/06	MWT	Total Strontium in Solids
RC-051-112	RC-051		04/12/06	7419-004	TH		05/25/06	05/30/06	MWT	Thorium, Isotopic in Solids
				7419-004	ט		05/31/06	05/31/06	MWT	Uranium, Isotopic in Solids
<b>J1</b> 1JK5			R604092-05	7419-005	GAM		05/23/06	05/23/06	CSS	Gamma Scan
100-H RIPARIAN	#9	SOLID	04/10/06	7419-005	SR		05/11/06	05/17/06	MWT	Total Strontium in Solids
RC-051-112	RC-051		04/12/06	7419-005	TH		05/23/06	05/30/06	MWT	Thorium, Isotopic in Solids
				7419-005	ט		05/12/06	05/31/06	MWT	Uranium, Isotopic in Solids
Method Blank			R604092-07	7419-007	GAM		05/23/06	05/23/06	CSS	Gamma Scan
		SOLID		7419-007	SR		05/11/06	05/17/06	MWT	Total Strontium in Solids
	RC-051			7419-007	TH		05/23/06	05/30/06	MWT	Thorium, Isotopic in Solids
				7419-007	ט		05/12/06	05/31/06	MWT	Uranium, Isotopic in Solids
Lab Control Sam	ple		R604092-06	7419-006	GAM		05/23/06	05/23/06	CSS	Gamma Scan
		SOLID		7419-006	SR		05/11/06	05/17/06	MWT	Total Strontium in Solids
	RC-051			7419-006	TH		05/23/06	05/30/06	MWT	Thorium, Isotopic in Solids
				7419-006	ט		05/12/06	05/31/06	MWT	Uranium, Isotopic in Solids
Ouplicate (R604)	092-01}		R604092-08	7419-008	GAM		05/23/06	05/23/06	css	Gamma Scan
LOO-H RIPARIAN	#9	SOLID	04/10/06	7419-008	SR		05/11/06	05/17/06	MWT	Total Strontium in Solids
	RC-051		04/12/06	7419-008	TH		05/23/06	05/30/06	MWT	Thorium, Isotopic in Solids
				7419-008	Ū		05/31/06	05/31/06	MWT	Uranium, Isotopic in Solids

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SAMPLE DELIVERY GROUP K0302

SDG	7419	
Contact	Melissa C. Mannion	

# WORK SUMMARY, cont.

Client	<u>Hanford</u>
Contract	No. 630
Case no	SDG K0302

TEST	SAF NO	COUNTS OF	TESTS BY SAM	PLE TYPE  CLIENT MORE	RE BLANK	LCS	DUP SPIKE	TOTAL
GAM	RC-051	Gamma Scan	GAMMA GS	5	1	1	1	8
SR	RC-051	Total Strontium in Solids	SRTOT_SEP_PRECIP_GPC	5	1	1	1	8
TH	RC-051	Thorium, Isotopic in Solids	THISO_IE_PLATE_AEA	5	1	1	1	8
Ü	RC-051	Uranium, Isotopic in Solids	UISO_PLATE_AEA	5	1	1	1	8
TOTALS				20	4	4	4	32

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Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-CWS</u>

Version <u>3.06</u>

Report date <u>06/02/06</u>

# EBERLINE SERVICES / RICHMOND SAMPLE DELIVERY GROUP K0302

R604092-07

## METHOD BLANK

Method Blank

	7419 Melissa C. Mannion	Client/Case no Contract	SDG_K0302
Lab sample id Dept sample id		Client sample id Material/Matrix SAF No	 SOLID

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Total Strontium	SR-RAD	-0.038	0.13	0.28	1.0	ש	SR
Thorium 228	14274-82-9	0.153	0.31	0.73	1.0	U	TH
Thorium 230	14269-63-7	-0.076	0.31	0.58	1.0	U	TH
Thorium 232	TH-232	0	0.15	0.58	1.0	Ü	TH
Uranium 233/234	U-233/234	0.007	0.022	0.034	1.0	U	U
Uranium 235	15117-96-1	0.013	0.017	0.033	1.0	U	U
Uranium 238	U-238	0	0.007	0.027	1.0	Ū	U
Potassium 40	13966-00-2	U		6.2		ש	GAM
Cobalt 60	10198-40-0	U		0.10	0.050	U	GAM
Cesium 137	10045-97-3	U		0.092	0.10	U	GAM
Radium 226	13982-63-3	U		0.27	0.10	ប	GAM
Radium 228	15262-20-1	บ		0.48	0.20	U	GAM
Europium 152	14683-23-9	ט		0.21	0.10	บ	GAM
Europium 154	15585-10-1	U		0.29	0.10	υ	GAM
Europium 155	14391-16-3	ט		0.24	0.10	ซ	GAM
Thorium 228	14274-82-9	U		0.13		σ	GAM
Thorium 232	TH-232	U		0.48		Ü	GAM
Uranium 235	15117-96-1	U		0.34		ט	GAM
Uranium 238	U-238	ប		11		U	GAM
Americium 241	14596-10-2	ט		0.29		U	GAM
Cesium 134	13967-70-9	υ		0.11		U	GAM

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QC-BLANK 56883

METHOD BLANKS
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SAMPLE DELIVERY GROUP K0302

R604092-06

# LAB CONTROL SAMPLE

Lab Control Sample

	···
SDG <u>7419</u>	Client/Case no Hanford SDG K0302
Contact Melissa C. Mannion	Contract No. 630
Lab sample id <u>R604092-06</u>	Client sample id Lab Control Sample
Dept sample id 7419-006	Material/MatrixSOLID
	SAF No RC-051

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC	3σ LMTS (TOTAL)	PROTOCOL
Total Strontium	11.0	0.54	0.21	1.0		SR	10.8	0.43	102	82-118	80-120
Thorium 230	44.0	7.7	0.83	1.0		TH	44.4	1.8	99	72-128	80-120
Uranium 233/234	18.0	0.75	0.33	1.0		ט	18.6	0.74	97	89-111	80-120
Uranium 235	14.4	0.65	0.040	1.0		ט	15.1	0.60	95	89-111	80-120
Uranium 238	19.3	0.79	0.31	1.0		י ד	20.2	0.81	96	89-111	80-120
Cobalt 60	2.76	0.29	0.13	0.050		GAM	2.65	0.11	104	71-129	80-120
Cesium 137	2.86	0.24	0.17	0.10		GAM	2.76	0.11	104	73-127	80-120

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LAB CONTROL SAMPLES
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SAMPLE DELIVERY GROUP K0302

R604092-08

## DUPLICATE

J11**J**K1

1	7419		Client/Case no	
Contact	Melissa C. Mannion		Contract	No. 630
	DUPLICATE	ORIGINAL		
Lab sample id	R604092-08	Lab sample id <u>R604092-01</u>	Client sample id	J11JK1
Dept sample id	7419-008	Dept sample id 7419-001	Location/Matrix	100-H RIPARIAN #9 SOLID
		Received <u>04/12/06</u>	Collected/Weight	04/10/06 09:00 491 g
% solids	100.0	% solids 100.0	Custody/SAF No	RC-051-112 RC-051

ANALYTE	DUPLICATE pCi/g	2σ BRR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI- FIERS	RPD	3σ TOT	DER σ
Total Strontium	-0.002	0.12	0.25	1.0	σ	SR	-0.065	0.11	0.25	Ū	_		0.8
Thorium 228	0.361	0.43	0.55	1.0	Ŭ	TH	0.446	0.67	1.1	U	-		0.2
Thorium 230	0.360	0.43	0.55	1.0	υ	TH	0.111	0.44	0.85	U	_		0.8
Thorium 232	0.432	0.29	0.55	1.0	U	TH	0.555	0.67	0.85	Ū	_		0.3
Uranium 233/234	0.519	0.25	0.19	1.0		ט	0.473	0.087	0.040		9	81	0.3
Uranium 235	0.060	0.060	0.23	1.0	σ	ט	0.009	0.017	0.033	ט	-		1.6
Uranium 238	0.371	0.20	0.19	1.0		υ	0.420	0.080	0.027		12	82	0.5
Potassium 40	9.65	1.4	0.68			GAM	10.4	1.6	1.1		7	45	0.5
Cobalt 60	ט		0.087	0.050	σ	GAM	ט		0.076	υ	_		0.2
Cesium 137	0.266	0.11	0.11	0.10		GAM	0.228	0.084	0.10		15	90	0.5
Radium 226	0.530	0.17	0.16	0.10		GAM	0.544	0.13	0.13		3	68	0.1
Radium 228	ប		0.82	0.20	Ū	GAM	ט		0.71	U	-		0.2
Europium 152	ΰ		0.22	0.10	U	GAM	U		0.23	U	_		0.1
Europium 154	ŭ		0.28	0.10	U	GAM	ŭ		0.27	υ	_		0.1
Europium 155	υ		0,22	0.10	υ	GAM	Ū		0.20	Ū	-		0.1
Thorium 228	0.535	0.092	0.10			GAM	0.686	0.13	0.15		25	51	1.5
Thorium 232	U		0.82		U	GAM	Ū		0.71	U	_		0.2
Uranium 235	σ		0.36		σ	GAM	U		0.32	บ	-		0.2
Uranium 238	υ		11		ט	GAM	υ		11	υ	-		0
Americium 241	ט		0.41		σ.	GAM	U		0.38	ŭ	-		0.1
Cesium 134	Ū		0.11		σ	GAM	U		0.11	U	-		0

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# EBERLINE SERVICES/RICHMOND SAMPLE DELIVERY GROUP K0302

R604092-01

## DATA SHEET

J11**J**K1

	7419 Melissa C. Mannion	Client/Case no Contract		SDG_K0302
sample id	R604092-01 7419-001 04/12/06 100.0	Client sample id Location/Matrix Collected/Weight Custody/SAF No	100-H RIPARIAN #9 04/10/06 09:00 49	SOLID 1 q 51

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	Quali- Fiers	TEST
Total Strontium	SR-RAD	-0.065	0.11	0.25	1.0	ט	SR
Thorium 228	14274-82-9	0.446	0.67	1.1	1.0	U	TH
Thorium 230	14269-63-7	0.111	0.44	0.85	1.0	Ū	TH
Thorium 232	TH-232	0.555	0.67	0.85	1.0	Ü	TH
Uranium 233/234	U-233/234	0.473	0.087	0.040	1.0	_	Ū
Uranium 235	15117-96-1	0.009	0.017	0.033	1.0	U	Ū
Uranium 238	U-238	0.420	0.080	0.027	1.0	_	Ū
Potassium 40	13966-00-2	10.4	1.6	1.1			GAM
Cobalt 60	10198-40-0	U		0.076	0.050	U	GAM
Cesium 137	10045-97-3	0.228	0.084	0.10	0.10	_	GAM
Radium 226	13982-63-3	0.544	0.13	0.13	0.10		GAM
Radium 228	15262-20-1	ט		0.71	0.20	บ	GAM
Europium 152	14683-23-9	ប		0.23	0.10	TT .	GAM
Europium 154	15585-10-1	ប		0.27	0.10	U	GAM
Europium 155	14391-16-3	บ		0.20	0.10	U	GAM
Thorium 228	14274-82-9	0.686	0.13	0.15		J	GAM
Thorium 232	TH-232	ט		0.71		U	GAM
Uranium 235	15117-96-1	ט		0.32		ט	GAM
Uranium 238	U-238	υ		11		Ū	GAM
Americium 241	14596-10-2	ט		0.38		Ū	GAM
Cesium 134	13967-70-9	ט		0.11		U	GAM

100&300Area Compnt RCBRA-Incrmntl So

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# EBERLINE SERVICES/RICHMOND SAMPLE DELIVERY GROUP K0302

R604092-02

## DATA SHEET

J11JK2

7419 Melissa C. Mannion	Client/Case no Contract	
	Collected/Weight	100-H RIPARIAN #9 SOLID

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Total Strontium	SR-RAD	-0.014	0.13	0.27	1.0	Ū	SR
Thorium 228	14274-82-9	0.424	0.37	0.46	1.0	U	TH
Thorium 230	14269-63-7	0.786	0.49	0.46	1.0		TH
Thorium 232	TH-232	0.665	0.37	0.46	1.0		TH
Uranium 233/234	U-233/234	0.445	0.081	0.025	1.0		U
Uranium 235	15117-96-1	0.016	0.024	0.031	1.0	υ	U
Uranium 238	U-238	0.398	0.074	0.025	1.0		U
Potassium 40	13966-00-2	11.9	1.8	1.0			GAM
Cobalt 60	10198-40-0	U		0.11	0.050	ប	GAM
Cesium 137	10045-97-3	0.227	0.12	0.13	0.10		GAM
Radium 226	13982-63-3	0.430	0.16	0.19	0.10		GAM
Radium 228	15262-20-1	U		0.93	0.20	υ	GAM
Europium 152	14683-23-9	ŭ		0.26	0.10	ប	GAM
Europium 154	15585-10-1	บ		0.35	0.10	ប	GAM
Europium 155	14391-16-3	U		0.23	0.10	U	GAM
Thorium 228	14274-82-9	0.734	0.16	0.18			GAM
Thorium 232	TH-232	ש		0.93		Ū	GAM
Uranium 235	15117-96-1	U		0.35		Ū	GAM
Uranium 238	U-238	ט		13		ט	GAM
Americium 241	14596-10-2	Ū		0.26		Ū	GAM
Cesium 134	13967-70-9	σ		0.15		υ	GAM

100&300Area Compnt RCBRA-Incrmntl So

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# EBERLINE SERVICES / RICHMOND SAMPLE DELIVERY GROUP K0302

R604092-03

## DATA SHEET

J11JK3

	7419 Melissa C. Mannion	Client/Case no Contract	
1			100-H RIPARIAN #9 SOLID 04/10/06 12:00 432 q

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Total Strontium	SR-RAD	0.095	0.11	0.20	1.0	Ū	SR
Thorium 228	14274-82-9	0.207	0.31	0.50	1.0	ប	TH
Thorium 230	14269-63-7	0.310	0.31	0.49	1.0	U	TH
Thorium 232	TH-232	0.516	0.31	0.39	1.0		TH
Uranium 233/234	U-233/234	0.448	0.073	0.026	1.0		Ū
Uranium 235	15117-96-1	0.017	0.020	0.032	1.0	U	Ū
Uranium 238	U-238	0.409	0.067	0.026	1.0		Ū
Potassium 40	13966-00-2	8.58	3.0	0.96			GAM
Cobalt 60	10198-40-0	U		0.099	0.050	ט	GAM
Cesium 137	10045-97-3	0.319	0.10	0.10	0.10		GAM
Radium 226	13982-63-3	0.399	0.16	0.15	0.10		GAM
Radium 228	15262-20-1	U		0.62	0.20	ซ	GAM
Europium 152	14683-23-9	U		0.23	0.10	ប	GAM
Europium 154	15585-10-1	U		0.31	0.10	U	GAM
Europium 155	14391-16-3	ΰ		0.24	0.10	ប	GAM
Thorium 228	14274-82-9	0.444	0.10	0.10			GAM
Thorium 232	TH-232	ប		0.62		U	GAM
Uranium 235	15117-96-1	υ		0.29		U	GAM
Uranium 238	U-238	U		10		U	GAM
Americium 241	14596-10-2	Ü		0.31		บ	GAM
Cesium 134	13967-70-9	ט		0.11		ប	GAM

100&300Area Compnt RCBRA-Incrmntl So

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## EBERLINE SERVICES / RICHMOND SAMPLE DELIVERY GROUP K0302

R604092-04

# DATA SHEET

J11JK4

1	7419 Melissa C. Mannion	Client/Case no Contract	
Lab sample id Dept sample id Received % solids	7419-004 04/12/06	Client sample id Location/Matrix Collected/Weight Custody/SAF No	100-H RIPARIAN #9 SOLID 04/10/06 13:56 431 q

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Total Strontium	SR-RAD	0.005	0.12	0.24	1.0	ט	SR
Thorium 228	14274-82-9	0.061	0.37	0.82	1.0	U	TH
Thorium 230	14269-63-7	0.428	0.37	0.47	1.0	υ	TH
Thorium 232	TH-232	0.245	0.25	0.47	1.0	σ	TH
Uranium 233/234	U-233/234	0.216	0.16	0.21	1.0		U
Uranium 235	15117-96-1	0	0.065	0.25	1.0	ซ	U
Uranium 238	U-238	0.324	0.16	0.21	1.0		บ
Potassium 40	13966-00-2	12.7	2.8	0.87			GAM
Cobalt 60	10198-40-0	U		0.10	0.050	U	GAM
Cesium 137	10045-97-3	0.295	0.096	0.098	0.10		GAM
Radium 226	13982-63-3	0.530	0.17	0.16	0.10		GAM
Radium 228	15262-20-1	0.655	0.36	0.37	0.20		GAM
Europium 152	14683-23-9	U		0.21	0.10	Ū	GAM
Europium 154	15585-10-1	Ū		0.27	0.10	υ	GAM
Europium 155	14391-16-3	Ŭ		0.23	0.10	ט	GAM
Thorium 228	14274-82-9	0.566	0.12	0.13			GAM
Thorium 232	TH-232	0.655	0.36	0.37			GAM
Uranium 235	15117-96-1	ט		0.28		ט	GAM
Uranium 238	U-238	Ŭ		11		U	GAM
Americium 241	14596-10-2	ΰ		0.29		บ	GAM
Cesium 134	13967-70-9	U		0.10		U	GAM

100&300Area Compnt RCBRA-Incrmntl So

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# EBERLINE SERVICES/RICHMOND SAMPLE DELIVERY GROUP K0302

R604092-05

## DATA SHEET

J11JK5

	7419 Melissa C. Mannion	Client/Case no Contract	
Lab sample id Dept sample id Received % solids	7419-005 04/12/06		100-H RIPARIAN #9 SOLID 04/10/06 14:00 438 g

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Total Strontium	SR-RAD	-0.007	0.12	0.26	1.0	ט	SR
Thorium 228	14274-82-9	0.416	0.42	0.53	1.0	บ	TH
Thorium 230	14269-63-7	0.415	0.42	0.66	1.0	ט	TH
Thorium 232	TH-232	0.415	0.28	0.53	1.0	ប	TH
Uranium 233/234	U-233/234	0.318	0.11	0.085	1.0		U
Uranium 235	15117-96-1	0.021	0.021	0.082	1.0	Ū	Ū
Uranium 238	U-238	0.344	0.11	0.068	1.0		U
Potassium 40	13966-00-2	13.0	3.1	1.0			GAM
Cobalt 60	10198-40-0	ប		0.12	0.050	ซ	GAM
Cesium 137	10045-97-3	0.225	0.10	0.12	0.10		GAM
Radium 226	13982-63-3	0.566	0.19	0.17	0.10		GAM
Radium 228	15262-20-1	0.692	0.36	0.37	0.20		GAM
Europium 152	14683-23-9	U		0.25	0.10	ប	GAM
Europium 154	15585-10-1	ប		0.32	0.10	ប	GAM
Europium 155	14391-16-3	ט		0.29	0.10	ប	GAM
Thorium 228	14274-82-9	0.589	0.11	0.12			GAM
Thorium 232	TH-232	0.692	0.36	0.37			GAM
Uranium 235	15117-96-1	Ŭ		0.36		บ	GAM
Uranium 238	U-238	บ		12		ប	GAM
Americium 241	14596-10-2	U		0.35		ប	GAM
Cesium 134	13967-70-9	σ		0.12		U	GAM

100&300Area Compnt RCBRA-Incrmntl So

DATA SHEETS
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SAMPLE DELIVERY GROUP K0302

Test	TH Matrix SOLID
SDG	7419
Contact	Melissa C. Mannion

## METHOD SUMMARY

THORIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client	Hanford
Contract	No. 630
Contract	SDG K0302

## RESULTS

	LAB	RAW	SUF-			
CLIENT SAMPLE ID	SAMPLE ID	TEST	FIX	PLANCHET	Thorium	n 230
Preparation batch 7181-0	)63					
J11JK1	R604092-01			7419-001	Ū	
J11JK2	R604092-02			7419-002	0.786	5
J11JK3	R604092-03			7419-003	σ	
J11JK4	R604092-04			7419-004	ΰ	
J11JK5	R604092-05			7419-005	Ū	
Method Blank	R604092-07			7419-007	σ	
Lab Control Sample	R604092-06			7419-006	ok	
Duplicate (R604092-01)	R604092-08			7419-008	-	Ų

## METHOD PERFORMANCE

	LAB	RAW	SUF-	MAX MDA	-	PREP FAC		YIELD	EFF	COUNT				PREPARED	ANAL- YZED	DETECTOR
CLIENT SAMPLE ID	SAMPLE ID	TEST	FIX	pCi/g	g	FAC	1108		*	МТП	NE V	YEA		FREFRIGD	1880	DBIBCIOR
Preparation batch 7181-	063 2σ pr	ep er:	ror 5.	.0 % Ref	ference	Lab N	lotebook	k 7181	pg.	63						
J11JK1	R604092-01			1.1	0.250			26		204			43	05/22/06	05/23	SS-059
J11JK2	R604092-02			0.46	0.250			44		204			43	05/22/06	05/23	SS-061
J11JK3	R604092-03			0.50	0.250			53		204			43	05/22/06	05/23	SS-062
J11JK4	R604092-04			0.82	0.250			36		202			45	05/22/06	05/25	SS-036
J11JK5	R604092-05			0.66	0.250			44		182			43	05/22/06	05/23	SS-066
Method Blank	R604092-07			0.73	0.250			39		171				05/22/06	05/23	SS-028
Lab Control Sample	R604092-06			0.83	0.250			28		171				05/22/06	05/23	SS-027
Duplicate (R604092-01)	R604092-08			0.55	0.250			43		171			43	05/22/06	05/23	SS-029
Nominal values and limi	ts from metho			1.0	0.250			20-10	5	150			180			

METHOD SUMMARIES

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SAMPLE DELIVERY GROUP K0302

Test U Matrix SOLID

SDG 7419

Contact Melissa C. Mannion

## METHOD SUMMARY

URANIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client	Hanford
Contract	No. 630
Contract	<u>SDG</u> K0302

## RESULTS

	LAB	RAW SUF-		1: Uranium	2: (	Jranium	3: Uranium		RESULT RATIO			S (%)	
CLIENT SAMPLE ID	SAMPLE ID	TEST FIX	PLANCHET	233/234		235	238		1+3	2σ	2+3	2σ	
Preparation batch 7181-	063			•							-	_	
J11JK1	R604092-01		7419-001	0.473	τ	]	0.420		113	30	2	4	
J11JK2	R604092-02		7419-002	0.445	τ	ı	0.398		112	29	4	6	
J11JK3	R604092-03		7419-003	0.448	τ	ı	0.409		110	25	4	5	
J11JK4	R604092-04		7419-004	0.216	τ	1	0.324		67	59	0	20	
J11JK5	R604092-05		7419-005	0.318	τ	r	0.344		92	44	6	6	
Method Blank	R604092-07		7419-007	ס	τ	r	Ū					_	
Lab Control Sample	R604092-06		7419-006	ok	ok	:	ok						
Duplicate (R604092-01)	R604092-08		7419-008	ok	-	U	ok		140	101	16	18	
Nominal values and limit	ts from method	i RD	Ls (pCi/g)	1.0	1.	0	1.0		100		4		
100&300Area Comput RCBR	A-Incrmntl So							Averages	105		5		

## METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	raw Test	SUF- FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD			FWHM keV		PREPARED	ANAL- YZED	DETECTOR
Preparation batch 7181-	063 24 72	en er	ror 6	0 % Re:	ference	Tab X	int about	- 7101		<i>-</i>					
J11JK1	R604092-01	op or	-UI J.	0.040		160 6	ocenooi	68	pg.	947		30	05/33/06	05/10	
J11JK2	R604092-02			0.031				71		947			05/12/06 05/12/06		
J11JK3	R604092-03			0.032				87		947			05/12/06	•	\$\$-036 \$\$-037
J11JK4	R604092-04				0.500			77		130			05/12/06	, -	
J11JK5	R604092-05			0.085				32		948			05/12/06		
Method Blank	R604092-07			0.034				80		948			05/12/06		
Lab Control Sample	R604092-06			0.33	0.500			92		948			05/12/06		
Duplicate (R604092-01)	R604092-08			0.23	0.500			85		130			05/12/06		
Nominal values and limit	s from metho	đ		1.0	0.500			20-105		100	100	180			

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SAMPLE DELIVERY GROUP K0302

Test <u>SR</u> Matrix <u>SOLID</u> SDG 7419

Contact Melissa C. Mannion

## METHOD SUMMARY

TOTAL STRONTIUM IN SOLIDS BETA COUNTING

Client <u>Hanford</u>

Contract <u>No. 630</u>

Contract <u>SDG K0302</u>

RESULTS

	LAB	RAW SUF-	To	al	
CLIENT SAMPLE ID	SAMPLE ID	TEST FIX PLANC	HET Stro	ntium	
Preparation batch 7181-	063				
J11Jk1	R604092-01	7419-	001 0		
J11JK2	R604092-02	7419-	002 U		
J11JK3	R604092-03	7419-	003 τ		
J11JK4	R604092-04	7419-	004 U		
711 <i>J</i> K5	R604092-05	7419-	005 U		
Method Blank	R604092-07	7419-	007 U		
ab Control Sample	R604092-06	7419-	006 <b>ok</b>		
Duplicate (R604092-01)	R604092-08	7419-	008 -	U	

#### METHOD PERFORMANCE

	LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	AIELD	EFF	COUNT	FWHM	DRIFT	DAYS		ANAL-	
CLIENT SAMPLE ID	SAMPLE ID	TEST	FIX	pCi/g	g	FAC	TION	ŧ	ŧ	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 7181-6	063 2σ pr	ep er:	ror 10	.0 % F	eference	Lab I	Notebool	c 7181	pg.	63	-, -					
JllJKl	R604092-01			0.25	1.00			93		100			31	05/11/06	05/11	GRB-203
J11JK2	R604092-02			0.27	1.00			93		100			31	05/11/06	05/11	GRB-204
J11JK3	R604092-03			0.20	1.00			93		100			31	05/11/06	05/11	GRB-228
J11JK4	R604092-04			0.24	1.00			95		100			31	05/11/06	05/11	GRB-222
J11JK5	R604092-05			0.26	1.00			93		100			31	05/11/06	05/11	GRB-224
Method Blank	R604092-07			0.28	1.00			93		100				05/11/06	05/11	GRB-219
Lab Control Sample	R604092-06			0.21	1.00			95		100				05/11/06		
Duplicate (R604092-01)	R604092-0B			0.25	1.00			94		100			31	05/11/06	05/11	GRB-220
Nominal values and limit	s from method	đ		1.0	1.00			30-105	;	100			180	· .	·	<u>.</u>

PROCEDURES	REFERENCE	SRTOT_SEP_PRECIP_GPC
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	CP-383	Strontium in Dissolved Solid of < 5.0g Aliquot,
		rev 1

METHOD SUMMARIES

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SAMPLE DELIVERY GROUP K0302

Test	GAM Matrix SOLID
SDG	7419
Contact	Melissa C. Mannion

# METHOD SUMMARY

GAMMA SCAN '
GAMMA SPECTROSCOPY

Client	Hanford
Contract	No. 630
Contract	SDG K0302

## RESULTS

	MPLE ID	TEST FIX	PLANCHET	Cobalt 6	0 Cesium 137	
Preparation batch 7181-063	*****	-	······································	<del></del>	<u>.</u>	
J11JK1 R6	04092-01		7419-001	Ū	0.228	
J11JK2 R6	04092-02		7419-002	σ	0.227	
J11JK3 R6	04092-03		7419-003	υ	0.319	
J11JK4 R6	04092-04		7419-004	Ū	0.295	
J11JK5 R6	04092-05		7419-005	Ŭ	0.225	
Method Blank R6	04092-07		7419-007	Ū	Ü	
Lab Control Sample R6	04092-06		7419-006	ok	ok	
Duplicate (R604092-01) R6	04092-08		7419-008	- U	ok	

## METHOD PERFORMANCE

	LAB	RAW	SUF-	ACM	ALIQ	PREP	DILU-	AIETD	BFF	COUNT	FWHM	DRIFT	DAYS		ANAL	
CLIENT SAMPLE ID	SAMPLE ID	TEST	FIX	pCi/g	g	FAC	TION	ŧ	ŧ	min	keV	KeV	HELLD	PREPARED	YZED	DETECTOR
Preparation batch 7181-00	63 2σ pr	ep er	ror 1	5.0 % Re	ference	Lab I	Notebook	7181	pg.	63						
J11JK1	R604092-01			_18	180					125			43	05/04/06	05/23	JR,05,00
J11JK2	R604092-02			_23	178					124			43	05/04/06	05/23	JR,03,00
<b>J11J</b> K3	R604092-03			_19	179					124			43	05/04/06	05/23	JR,02,00
711JK4	R604092-04			20	187					125			43	05/04/06	05/23	JR,08,00
J11JK5	R604092-05			21	185					103			43	05/04/06	05/23	JR,02,00
Method Blank	R604092-07			_21	178					103				05/04/06	05/23	JR,08,00
ab Control Sample	R604092-06			0.13	178					103				05/04/06	05/23	JR,03,00
Auplicate (R604092-01)	R604092-08			_19	180					103			43	05/04/06	05/23	JR,05,00
<u> </u>																
Tominal values and limits	s from metho	đ		0.050	178					100			180			

SPP-100 Ge(Li) Preparation for Commercial Samples, rev 7	PROCEDURES	REFERENCE	GAMMA_GS
		SPP-100	Ge(Li) Preparation for Commercial Samples, rev 7

AVERAGES ± 2 SD	MDA <u>18</u> ± <u>14</u>
FOR 8 SAMPLES	YIELD ±

METHOD SUMMARIES
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SAMPLE DELIVERY GROUP K0302

SDG 7419 Contact Melissa C. Mannion

#### REPORT GUIDE

Client	Hani	ford
Contract	No.	630
Case no	SDG	K0302

#### SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

- \* LAB SAMPLE ID is the lab's primary identification for a sample.
- \* DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.
- \* CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.
- \* QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.
  - QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.
- \* All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

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SAMPLE DELIVERY GROUP K0302

SDG	7419		
Contact	Melissa	C.	Mannion

#### REPORT GUIDE

Client	<u>Hanford</u>
Contract	No. 630
Case no	SDG_K0302

#### PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

- \* The preparation batches are shown in the same order as the Method Summary Reports are printed.
- \* Only analyses of planchets relevant to the SDG are included.
- \* Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.
- \* The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

These qualifiers should be reviewed as follows:

- X Some data has been manually entered or modified. Transcription errors are possible.
- P One or more results are 'preliminary'. The data is not ready for final reporting.
- 2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

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SAMPLE DELIVERY GROUP K0302

SDG 7419
Contact Melissa C. Mannion

#### REPORT GUIDE

Client	Hanford	_
Contract	No. 630	_
Case no	SDG_K0302	_

#### WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

- \* TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.
- \* SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.
- \* The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.
- \* PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.
- \* For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.
- \* The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

REPORT GUIDES

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SUMMARY DATA SECTION

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SAMPLE DELIVERY GROUP K0302

SDG 7419
Contact Melissa C. Mannion

## REPORT GUIDE

Client	Hanford	
Contract	No. 630	
Case no	SDG_K0302	

#### DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

- \* TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.
- \* The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

- \* ERRORs can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.
- \* A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.
- \* When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U The RESULT is less than the MDA (Minimum Detectable Activity).

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SAMPLE DELIVERY GROUP K0302

SDG 7419
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GUIDE, cont.

Client	Hanford	
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#### DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

- J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.
- B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

- L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.
- H Similar to 'L' except the recovery was high.
- P The RESULT is 'preliminary'.
- X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.
- 2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

\* An MDA is underlined if it is bigger than its RDL.

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SAMPLE DELIVERY GROUP K0302

SDG 7419 Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
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#### DATA SHEET

- \* An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.
- \* A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.
- \* When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

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SAMPLE DELIVERY GROUP K0302

SDG	7419		
Contact	Melissa	C.	Mannion

#### REPORT GUIDE

Client	Hanford
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#### LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

- \* All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.
- \* An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- \* REC (Recovery) is RESULT divided by ADDED expressed as a percent.
- \* The first, computed limits for the recovery reflect:
  - 1. The error of RESULT, including that introduced by rounding the result prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

- 2. The error of ADDED.
- 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- \* The second limits are protocol defined upper and lower QC limits for the recovery.
- \* The recovery is underlined if it is outside either of these ranges.

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SAMPLE DELIVERY GROUP K0302

SDG <u>7419</u> Contact <u>Melissa C. Mannion</u>

#### REPORT GUIDE

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#### DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

\* All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

\* The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTs divided by their average expressed as a percent.

If both RESULTs are less than their MDAs, no RPD is computed and a '-' is printed.

For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

\* The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTs prior to printing.

If this limit is labeled TOT, it includes the preparation error in the RESULTs. If labeled CNT, it does not.

This value reported for this limit is at most 999.

- \* The second limit for the RPD is the larger of:
  - 1. A fixed percentage specified in the protocol.

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Client	Hanford	
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Case no	SDG_K0302	

## DUPLICATE

- 2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.
- \* The RPD is underlined if it is greater than either limit.
- \* If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

\* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

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#### MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

\* All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

\* An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- \* REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.
- \* The first, computed limits for the recovery reflect:
  - 1. The errors of the two RESULTs, including those introduced by rounding them prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

- 2. The error of ADDED.
- 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- \* The second limits are protocol defined upper and lower QC limits

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SAMPLE DELIVERY GROUP K0302

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GUIDE, cont.

Client	Hanford
Contract	No. 630
Case no	SDG_K0302

#### MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

\* The recovery is underlined (out of spec) if it is outside either of these ranges.

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SAMPLE DELIVERY GROUP K0302

SDG 7419
Contact Melissa C. Mannion

#### REPORT GUIDE

Client	Hani	ford
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#### METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

- \* Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.
  - There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.
- \* The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.
  - The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.
- \* If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

The J and X flags are as on the data sheet.

- \* Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.
- \* Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

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SAMPLE DELIVERY GROUP K0302

SDG 7419 Contact Melissa C. Mannion

GUIDE, cont.

Client <u>Hanford</u>
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Case no <u>SDG\_K0302</u>

#### METHOD SUMMARY

means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

- \* Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.
- \* If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

MDAs are underlined if greater than the printed RDL.

- \* Aliquots are underlined if less than the nominal value specified for the method.
- \* Prepareation factors are underlined if greater than the nominal value specified for the method.
- \* Dilution factors are underlined if greater than the nominal value specified for the method.
- \* Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.
- \* Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.
- \* Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

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#### EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0302

SDG <u>7419</u> Contact <u>Melissa C. Mannion</u>

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG\_K0302

#### METHOD SUMMARY

- \* Count times are underlined if less than the nominal value specified for the method.
- \* Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.
- \* Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.
- \* Days Held are underlined if greater than the holding time specified in the protocol.
- \* Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1÷3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/02/06

#### EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K0302

SDG 7419 Contact Melissa C. Mannion

GUIDE, cont.

Client	Hanford
Contract	No. 630
Case no	SDG_K0302

#### METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

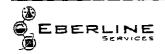
For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

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Page 36

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/02/06

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#### RICHMOND, CA LABORATORY

#### SAMPLE RECEIPT CHECKLIST

Client	W,	C. HA	JFOMD	City	RICHLAND	State	. WA	
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Contai	ner i.D. No	o. Le ch	EST Reques	ted TAT (Days	i) 45 P.O. Receiv	ved Yes	[] No[]	<del></del>
				INSPE	CTION			
1.	Custody	seals on si	nipping containe	er intact?		Yes [X]	No [ ] N/	A <b>¥</b> (]
2.	Custody	seals on st	nipping containe	er dated & sign		7,5	No [ ] N/	
3.	Custody	seals on sa	ample container	s intact?		Yes[ ]	No [ ] N/.	A [X]
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Joan Kessner WC-Hanford 3190 Washington Way MSIN H9-03

Richland, WA 99354

Subject: Analytical Data Package

Dear Ms. Kessner:

Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

LvLI Batch #	0604L752
SDG#	K0302
SAF#	RC-051
Date Received	4/12/06
# Samples	5
Mat\rix	Soil
Volatiles	
Semivolatiles	Χ
Pest/PCB	Χ
PAH	
DRO/KRO/GRO	
GC Alcohols	
Herbicides	THE STATE OF THE S
Metals	Χ
Inorganics	Χ
	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

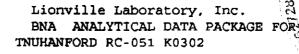
The electronic data deliverable (EDD) will be emailed shortly. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,

Lionville Laboratory Incorporated

Orlette S. Johnson Project Manager

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N/A

LVL LOT # :06044

04/19/06

04/24/06

DATE RECEIVED: 04/12/06

SBLKWI

LVL #	МТХ	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
001		061 00007	04/10/06	04/10/06	04/30/05
		• - •	•	• •	04/30/06
002	S	06LE0297	04/10/06	04/19/06	04/30/06
002 MS	s s	06LE0297	04/10/06	04/19/06	04/30/06
002 MS	SD S	06LE0297	04/10/06	04/19/06	04/30/06
003	S	06LE0297	04/10/06	04/19/06	04/30/06
004	S	06LE0297	04/10/06	04/19/06	05/01/06
005	s	06LE0297	04/10/06	04/19/06	04/30/06
MB1	s	06LE0297	N/A	04/19/06	04/24/06
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S 06LE0297

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#### Case Narrative

Client: TNU-HANFORD RC-051

**LVL #:** 0604L752

SDG/SAF # K0302/RC-051

**W.O.** #: 11343-606-001-9999-00

**Date Received: 04-12-2006** 

#### **SEMIVOLATILE**

Five (5) soil samples were collected on 04-10-2006.

The samples and their associated QC samples were extracted according to Lionville Laboratory SOPs based on SW 846 method 3540C on 04-19-2006 and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 04-24,30-2006 and 05-01-2006.

The following is a summary of QC results accompanying the sample results. Lionville Laboratory Inc (LvLI) certifies that all test results meet the requirements of NELAC except as noted below:

- 1. Samples were extracted and analyzed within required holding time.
- 2. Non-target compounds were detected in the samples.
- 3. All surrogate recoveries were within acceptance criteria.
- 4. Five (5) of one hundred twenty-eight (128) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
- 5. All blank spike recoveries were within acceptance criteria.
- 6. The method blank contained the common laboratory contaminants Bis (2-Ethylhexyl) phthalate and Di-n-butylphthalate at levels less than the CRQL.
- 7. Internal standard area and retention time criteria were met.
- 8. Sample results were reported on a wet-weight basis.
- 9. Manual integrations are performed according to SOP QA-125 to produce quality data with the utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 2 5 pages.



- 10. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
- 11. I certify, that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data, contained in this hard-copy data package, has been authorized, by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels

aboratory Manager

Lionville Laboratory Incorporated

som\gorup\data\bna\tnu-hanford\0604-752.doc

5/8/06

Lionville Laboratory S	Sample Discrepand	y Report (S	DR) <sub>SDF</sub>	R#: 06 MS/45
Initiator: Sharon Saylor	Batch: 0604 L751		Parameter:	8170
Date: 5-1-06	Samples: 00 2ms,002		Matrix:	Solio
Client: Twu	Method: SW846 MCAVM			06 (EO 297
-				
1. Reason for SDR				
a. COC Discrepancy Tech Profi Transcript			eler Error on C-C	⊬ <b>c</b> ———
b. General Discrepancy		Mhan a Canad	. 5.4.4	1 -11 10st - 40r0-1
	ontainer Broken Isufficient Sample	Wrong Sampk Preservation V	<del></del>	Label ID's Illegible
	ot Amenable to Analysis	Preservation v	widig	Received Past Hold
Note*: Verified by [Log-In] or [Prep Group] (ci	•		<del></del>	
c. Problem (include all relevant spec	ific results; attach data if neo	essary)		
low rewreng of Severa	I analytes in the a	natrixspike,	natixspiked	y but
the blank goike				
The state of the	יז סול		•	
2. Known or Probable Causes(s)				
. Joseph J. J. A.	ematic Chamatyuph	- behannor	her com	ande
1035 due to highly o	in the Chamaton of	, 50	~	poor o
3. Discussion and Proposed Action	Other Description	n:		· · · · · · · · · · · · · · · · · · ·
Re-log Entire Batch	1			
Following Samples:	namate			
Re_leach	_			4
Re extract		0.	•	
Re-digest Revise EDD		<b>,</b>		
Change Test Code to	_			
Place On/Take Off Hold (circle)	1 Sient	411		
4. Project Manager Instructionssign	nature/date:	514109		
Concur with Proposed Action Disagree with Proposed Action; S	See Instruction			
Include in Case Narrative				
Client Contacted:				
Date/Person	<del></del>			
Cancel				
5. Final Actionsignature/date:	40/8/06	Other Explanation	1:	
Verified re-[log][leach][extract][dig	est][analysis] (circle)			
Included in Case Narrative				
Hard Copy COC Revised Electronic COC Revised	·			
EDD Corrections Completed				
When Final Action has been recorde	ed, forward original to QA	specialist for dis	tribution and fi	ling.
Route Distribution of Completed SDR	Rou		f Completed SD	R
X Initiator	Favlor —	Metals: Be		
X Lab General Manager: M. X Project Mgr. Stone Johnson		Inorganic: GC/LC: Ki	cet Lailous	
Data Management: Stilwell		MS: Rychi	ak/Daley	
Sample Prep: Beegle/Kiger		Log-in: Pe	m)	
•		Admin:		

#### **GLOSSARY**

#### **DATA QUALIFIERS**

- U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
- Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
- E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- **D** = Identifies all compounds identified in an analysis at a secondary dilution factor.
- I = Interference.
- NQ = Result qualitatively confirmed but not able to quantify.
- N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
- X = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closes internal standard).
- Y = Additional qualifiers used as required are explained in the case narrative.

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#### **GLOSSARY**

#### **ABBREVIATIONS**

BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

**DL** = Suffix added to sample number to indicate that results are from a diluted analysis.

NA = Not Applicable.

**DF** = Dilution Factor.

NR = Not Required.

SP, Z = Indicates Spiked Compound.

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#### TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quan modifications or integrations are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following 'flags' are used to indicate the technical reasons for quan modifications:

- MP Missed Peak: Manually added peak not found by automatic quan program.
- PA Peak Assignment: Quan report was changed to reflect correct peak assignment.
- RI Routine Integration: Routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the Dichlorobenzene isomers on the VOA packed column and Benzo (b) fluoranthene /Benzo (k) fluoranthene which are poorly resolve on the BNA column.
- SP Split Peak: The automatic integration improperly split the peak; a manual integration was performed to get the correct area.
- CB Co-elution/ Background: Peak was manually integrated to eliminate contribution from co-eluting compounds, background signal, or other interference.
- Proper Integration: A peak with poor or inconsistent integration (i.e., excessive tail) was properly integrated manually.

LVL-21-21-035/A-08/93



#### Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 05/05/06 09:46 Client: TNUHANFORD RC-051 K0302 Work Order: 11343606001 RFW Batch Number: 0604L752 Page: 1a

	Cust ID:	J11JK1		J11JK2		J11JK2		J11JR2		J <b>11</b> JK3		J11 <b>J</b> K4	1
Sample	RFW#:	001		. 002		002 MS	ı	002 MSD		003		004	1
Information	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		ŞOIL	
111101111011	D.F.:	1.0	0	1.0	0	1.0	n	1.00	n	1.0	Λ	1.0	۱0
	Units:	ug/K		ug/K		ug/K		ug/Kg		ug/K	_	ug/F	
			-5			-9/11	.5	09/ N	9	ug/ n	.9	ug/r	vg
	Nitrobenzene-d5	54	*	58	ક્ષ	57	*	56	§.	57	४	61	*
Surrogate	2-Fluorobiphenyl	61	8	66	ક્ષ	71	\$	61	¥	64	¥	63	ક
Recovery	Terphenyl-d14	66	*	73	ક	72	*	61	ş	68	ક્ષ	80	*
	Phenol-d5	55	*	60	ક્ષ	62	ሄ	60	*	58	윧	51	ક
	2-Fluorophenol	53	ક્ષ	55	of the	45	¥	54	ş	55	ક	46	8
	2,4,6-Tribromophenol	69	ક્ષ	74	왕	82	*	70	ð	67	ક	68	8
==========		*****	=f1=			========	=fl		=fl		=fl		-=fl
Phenol		330	U	330	U	66	ક	69	ş	330	U	18	Ĵ
bis(2-Chloro	ethyl)ether	330	U	330	U	55	¥	63	¥	330	Ū	330	U
2-Chlorophen		330	U	330	U	58	왐	67	¥	330	U	330	ט
1,3-Dichloro	benzene	330	U	330	U	45 *	ક્ર	58	8	330	U	330	Ū
1,4-Dichloro	benzene	330	Ū	330	U	44 *	ક્ષ	58	*	330	บ	330	U
1,2-Dichloro	benzene	330	Ū	330	U	50	ሄ	62	¥	330	U	330	บ
2-Methylphen	nol	330	U	330	Ū	69	*	69	Ł	330	U	330	U
2,2'-oxybis(	(1-Chloropropane)	330	Ū	330	U	60	*	65	*	330	U	330	U
	lo1	330	U	330	U	74	ક	70	*	330	บ	330	Ū
N-Nitroso-di	-n-propylamine	330	U	330	U	70	ક્ષ	68	ł	330	Ū	330	U
Hexachloroet	hane	330	Ū	330	U	44 *	*	55	ક	330	U	330	Ü
Nitrobenzene		330	Ū	330	U	60	*	64	8	330	U	330	U
Isophorone_		330	U	330	ט	78	¥	76	ફ	330	U	330	U
2-Nitropheno	01	330	U	330	U	66	¥	68	*	330	U	330	U
2,4-Dimethyl	phenol	330	Ü.	. 330	U	68	¥	67	f	330	U	330	Ū
	oethoxy) methane	330	Ū	330	Ü	71	옿	70	Ł	330	Ū	330	U
2,4-Dichloro		330	Ū	330	Ū	74	*	71	ŧ	330	U	330	U
	Lorobenzene	330	U	330	Ū	60	*	64	¥	330	U	330	U
		330	U	330	Ū	61	ሄ	64	8	330	U	330	Ū
	line	330	U	330	U	54	*	53	ક્ષ	330	Ü	330	U
Hexachlorobu	ıtadiene	330	U	330	U	65	8	69	뢍	330	Ū	330	Ū
4-Chloro-3-m	nethylphenol	330	Ū	330	Ū	92	ક્ર	87	웋	330	υ	330	Ū
2-Methylnaph	nthalene	330	U	330	U	70	ક્ષ	68	*	330		330	
Hexachlorocy	/clopentadiene	330	U	330	U	38	웋	41	*	330		330	
2,4,6-Trichl		330	Ü	330	U	80	¥	72	ક	330		330	
2,4,5-Trich]		830	U	830	U	81	暑	74	ક્ર	830		830	
*= Outside o	of EPA CLP QC limits.								-		-	330	

RFW Batch Number: 0604L752	Client: TN	UHANFORD RC	-051 K	0302	Work	Order: 11	34360	<b>06</b> 001		Page: 1b	
Cust ID:	J11JK1	J11JK	2	J11JK		J11JK2		J11JK3	}	J11 <b>J</b> K4	£
RFW#:	001	00	2	002.10		000					
Reny:	001	00	2	002 M	S	002 MSI	•	003	3	004	£
2-Chloronaphthalene	330 U	330	U	71	8	67	ક	330	U	330	
2-Nitroaniline	830 U	830	U	77	8	72	8	830		830	IJ
Dimethylphthalate	330 U	330	U	86	8	78	8	330		330	U
Acenaphthylene	330 U	330	U	73	%	68	e E	330	Ū	330	U
2,6-Dinitrotoluene	330 U	330	U	83	ક	77	8	330	U	330	บ
3-Nitroaniline	830 U	830	Ū	79	8	74	ş	830	U	830	U
Acenaphthene	330 U	330	Ū	72	ક	66	r Y	330	Ü	330	Ü
2,4-Dinitrophenol	830 U	830	Ū	42	*	54	8	830	U	830	Ü
4-Nitrophenol	830 U	830	U	37 •	* %	38 *	=	830	U	830	Ü
Dibenzofuran	330 U	330	σ	73	ž.	69	ક	330	Ŭ	330	-
2,4-Dinitrotoluene	330 U	330	Ū	85	¥	79	8	330	Ü		Ū
Diethylphthalate	330 U	330	Ū	81	8	76	å	330	Ü	330 330	Ü
4-Chlorophenyl-phenylether	330 ប	330	Ū	75	ş	71	¥	330	U	330	Ü
Fluorene	330 U	330	U	69	· Y	66	è	330	U	330	U
4-Nitroaniline	830 U	830	σ	70	8	71	e e	830	U	830	n n
4,6-Dinitro-2-methylphenol	830 U	830	U	87	8	80	ž	830	Ü	830	บ
N-Nitrosodiphenylamine (1)	330 U	330	U	71	*	62	ક	330	Ü	330	U
4-Bromophenyl-phenylether	330 U	330	U	75	8	65	*	330	บ	330	บ
Hexachlorobenzene	330 U	330	U	91	<b>%</b>	80	Š	330	U	330	ū
Pentachlorophenol	830 U	830	Ū	87	8	87	*	830	U	830	Ü
Phenanthrene	130 ј	330	U	76	¥	70	ł	330	บ	330	ט
Anthracene	. 31 J	330	U	77	¥	71	ł	330	Ū	330	ט ט
Carbazole	330 U	330	U	73	8	74	ş	330	U	330	บ
Carbazole Di-n-butylphthalate	21 Л	B 23	JВ	7 <b>7</b>	8	75	8	28	JВ	330	ซ
Fluoranthene	540	330	ט	74	¥	78	*	330	U	330	U
Pyrene	440	17	J	75	¥	63	8	330	Ū	330	IJ
Butylbenzylphthalate	330 U	330	Ū	80	*	73	8	330	Ū	330	U
3,3'-Dichlorobenzidine	330 U	330	U	61	*	58	è.	330	Ü	330	n
Benzo (a) anthracene	320 J	19	J	78	ક	72	8	330	Ü	330	IJ
Chrysene	350	22	J	77	*	71	g.	330	Ū	330	U
bis(2-Ethylhexyl)phthalate	39 J	3 36	JB	82	ક્રુ	73	*	37	JВ	26	JB
Di-n-octyl phthalate	330 U	330	Ū	68	ફ્ર	60	8	330	U	330	U
Benzo(b)fluoranthene	220 J	20	J	71	કૃ	65	8		J		Ū
Benzo(k)fluoranthene	230 Ј	19	J	71	&	63	8	330		330	-
Benzo (a) pyrene	230 J	19	J	73	&	67	f	330			
Indeno(1,2,3-cd)pyrene	140 J	330	U	82	ક્ર	75	ક	330		330 330	
Dibenz(a,h)anthracene	70 J	330	U	81	ક	73	8	330			
Benzo(g,h,i)perylene	140 J	330	U	81	ક્ર	74	8	330		330 330	
(1) - Cannot be separated from Dipl	nenylamine.	*= Outside	of EP	A CLP QC	limit	s.	-	330	J	330	U

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 05/05/06 09:46 RFW Batch Number: 0604L752 Client: TNUHANFORD RC-051 K0302 Work Order: 11343606001 Page: 2a

	Cust ID:	<b>J11JK</b> 5		SBLKWI		SBLKWI BS		
Sample	RFW#;	005		06LR0297-MB	1	06LE0297-ME		
Information	Matrix:	SOIL		SOIL		SOIL		
	D.F.:	1.0	0	1.00	)	1.00		
	Units:	ug/K	g	ug/Kg	ſ	ug/Kg		
	Nitrobenzene-d5	63	 *	67	<del>४</del>	70		
Surrogate	2-Fluorobiphenyl	75	¥	65	ક	_		
Recovery	Terphenyl-d14	89	옿		용	82		
•	Phenol-d5	66	¥		8	=		
	2-Fluorophenol	59	¥	70	8	72		
	2,4,6-Tribromophenol	92	*	54	ક્ર	78		
							l======fl======	
Phenol		23	J	330	U			
bis (2-Chloroe	thyl)ether	330	Ų	330	U			
2-Chloropheno	1	330	U	330	U			
1,3-Dichlorob	enzene	330	U	330	U			
1,4-Dichlorob	enzene	330	U	330	Ū			
1,2-Dichlorob	enzene	330	U	330	U	81		
2-Methylpheno		330	U	330	U	81		
2,2'-oxybis(1	-Chloropropane)	330	U	330	U	81		
4-Methylpheno	1	330	U	330	U	82		
N-Nitroso-di-	n-propylamine	330	U	330	U	83		
Hexachloroeth	ane	330	Ū	330	U	76		
Nitrobenzene_		330	U	330	U	78		
Isophorone		330	U	330	Ū	87		
2-Nitrophenol		330	Ü	330	U	80		
2,4-Dimethylp	henol	330	Ū	330	Ū	67		
bis (2-Chloroe	thoxy)methane	330	U	330	U	84		
2,4-Dichlorop	henol	330	U	330	U	84		
	robenzene	330	U	330	U	78		
Naphthalene		330	U	330	Ū	77		
4-Chloroanili	ne	330	U	330	U	95		
Hexachlorobut	adiene	330	U	330	U	86		
4-Chloro-3-me	thylphenol	330	U	330	U	84		
2-Methylnapht	halene	330	Ū	330	Ū	82		
Hexachlorocyc	lopentadiene	330	U	330	U	62		
2,4,6-Trichlo	rophenol	330	U	330	U	84		
2,4,5-Trichlo	rophenol	830	Ū	830	U	87		
	EPA CLP QC limits.							

RFW Batch Number: 0604L752	Client:	וחאג	HANFUKU KC-U	ÞΤ	KU3U2	vork U	raer: 113436	06001	Page: 2b	
Cust ID:	J11JK5		SBLKWI		SBLKWI BS					
RFW#:	005		06LE0297-MB	1	06LE0297-M	<b>&gt;</b> 1				
Krw#:	003		VOLEUZ 3 / - MB		00DE023/-M	<b>3 .</b>				
2-Chloronaphthalene	330	Ū	330	U	81	*				
2-Nitroaniline		U	830	U	86	*				
Dimethylphthalate		U	330	U	87	%				
Acenaphthylene		U	330	U	81	8				
2,6-Dinitrotoluene		Ū	330	U	84	*				
3-Nitroaniline		Ū	830	Ū	109	૪				
Acenaphthene		Ū	330	U	80	*				
2,4-Dinitrophenol	830	U	830	U	34	ફ				
4-Nitrophenol		U	830	U	83	ક્ષ				
Dibenzofuran		U	330	U	82	8				
2,4-Dinitrotoluene		U	330	U	90	ક			•	
Diethylphthalate		U	330	U	87	*				
4-Chlorophenyl-phenylether	330	U	330	U	84	*				
Fluorene		U	330	U	79	*				
4-Nitroaniline	830	U	830	U	88	ક				
4,6-Dinitro-2-methylphenol	830	U	830	U	81	ક				
N-Nitrosodiphenylamine (1)	330	U	330		74	ક				
4-Bromophenyl-phenylether			330		76	8				
Hexachlorobenzene	330		330		88	४				
Pentachlorophenol	830		830		90	*				
Phenanthrene	330		330		85	¥				
Anthracene	330		330		87	¥				
Carbazole	330		330		85	¥				
Di-n-butylphthalate	26	JΒ			88	ક				
Fluoranthene			330		88	ક				
Pyrene	17		330		87	¥				
Butylbenzylphthalate			330		94	*				
3,3'-Dichlorobenzidine			330		100	*				
Benzo(a)anthracene	330	_	330		86	ક				
Chrysene	330		330		84	ક				
bis(2-Ethylhexyl)phthalate	. 39					ક				
Di-n-octyl phthalate	330		330		98	ક				
Benzo(b)fluoranthene	. 330		330		87	ક				
Benzo(k)fluoranthene	330		330		85	¥				
Benzo(a)pyrene	330		330		83	¥				
Indeno(1,2,3-cd)pyrene	330		330		83	ક				
Dibenz(a,h)anthracene			330		82	ક				
Benzo(g,h,i)perylene	330	U	330		81	¥				
(1) - Cannot be separated from Dir	henylamine		*= Outside (	of	EPA CLP QC	limits	١.			

## 1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

ľ	
ļ	J11JK1
1	

CLIENT SAMPLE NO.

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD RC-051 K0302

Matrix: (soil/water) SOIL Lab Sample ID: 0604L752-001

Sample wt/vol: 30.1 (g/mL)  $\underline{G}$  Lab File ID:  $\underline{D043010}$ 

Level: (low/med) LOW Date Received: <u>04/12/06</u>

% Moisture: 100 decanted: (Y/N) Date Extracted: 04/19/06

Concentrated Extract Volume: 1000(uL) Date Analyzed: 04/30/06

Injection Volume: 2.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: \_\_\_ CONCENTRATION UNITS:

Number TICs found: <u>5</u> (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 110-82-7	CYCLOHEXANE	3.607	3000	JBN
2.	ALAKNE	27.578		J
3.	UNKNOWN	29.783	700	J
4.	ALKANE	30.601	800	
5.	ALKANE	34.615	900	_

#### SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

  J11JK2	,	
İ		

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD RC-051 K0302

Matrix: (soil/water) <u>SOIL</u>

Lab Sample ID: 0604L752-002

Sample wt/vol: 30.0 (g/mL)  $\underline{G}$  Lab File ID:  $\underline{D043011}$ 

Level: (low/med) LOW

Date Received: 04/12/06

% Moisture: <u>100</u> decanted: (Y/N)\_\_

Date Extracted: 04/19/06

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 04/30/06

34.607

900 J

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

ALKANE

pH:\_\_\_

Number TICs found: 5

5.

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

CAS NUMBER COMPOUND NAME | EST. CONC. | Q RT1. 110-82-7 | CYCLOHEXANE 3.598 3000 JBN ALKANE 400 J 27.569 3. UNKNOWN 29.774 800| J 4. ALKANE 30.593 800 J

1F

CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

1		
J11JK3		
OTTORS		

Lab Name: Lionville Labs. Inc. Work Order: 11343606001

Client: TNUHANFORD RC-051 K0302

Matrix: (soil/water) SOIL Lab Sample ID: 0604L752-003

Sample wt/vol: 30.1 (g/mL)  $\underline{G}$  Lab File ID:  $\underline{D043013}$ 

Level: (low/med) LOW Date Received: 04/12/06

% Moisture: 100 decanted: (Y/N) Date Extracted: 04/19/06

Concentrated Extract Volume: 1000(uL) Date Analyzed: 04/30/06

Injection Volume: 2.0 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: \_\_\_\_\_CONCENTRATION UNITS:

Number TICs found: 5 (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
			=========	<b>====</b>
1.	CYCLOHEXNAE	3.590	3000	JBN
2.	ALKANE	27.571	400	J
3.	UNKNOWN	29.776	700	J
4.	ALKANE	30.585	800	J
5.	ALKANE	34.599	800	J
		<u> </u>		ĺ

1F

CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD RC-051 K0302

GPC Cleanup: (Y/N) N

Matrix: (soil/water) SOIL Lab Sample ID: 0604L752-004

Sample wt/vol: 30.1 (g/mL)  $\underline{G}$  Lab File ID:  $\underline{J050112}$ 

Level: (low/med) LOW Date Received: 04/12/06

% Moisture: 100 decanted: (Y/N) Date Extracted: 04/19/06

Concentrated Extract Volume: 1000(uL) Date Analyzed: 05/01/06

Injection Volume: 2.0(uL) Dilution Factor: 1.00

pH: \_\_\_

Number TICs found: 5 (ug/L or ug/Kg) ug/Kq

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
		======		=====
1. 110-82-7	CYCLOHEXANE	4.813	.2000	JBN
2.	UNKNOWN	13.076	400	J
3.	UNKNOWN	30.275	700	J
4.	ALKANE	30.989	2000	J
5.	ALKANE	34.810	800	J
1		! 1		

CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

J11JK5

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD RC-051 K0302

Lab Sample ID: <u>0604L752-005</u> Matrix: (soil/water) <u>SOIL</u>

Sample wt/vol: <u>30.0</u> (g/mL) <u>G</u> Lab File ID: <u>N043011</u>

Level: (low/med) LOW Date Received: 04/12/06

% Moisture: 100 decanted: (Y/N)\_\_ Date Extracted: 04/19/06

Concentrated Extract Volume: 1000(uL) Date Analyzed: <u>04/30/06</u>

Injection Volume: 2.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: \_\_\_ CONCENTRATION UNITS:

Number TICs found: <u>5</u> (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	23.233	400	J
2.	UNKNOWN	23.959	700	J
3.	ALKANE	24.287	800	J
4.	UNKNOWN	24.408	600	J
5.	ALKANE	25.936	700	J

1 F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS CLIENT SAMPLE NO.

SBLKWI

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD RC-051 K0302

Matrix: (soil/water) SOIL Lab Sample ID: 06LE0297-MB1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: D042414

Level: (low/med) LOW Date Received: 04/19/06

% Moisture: \_\_\_\_ decanted: (Y/N)\_\_ Date Extracted: 04/19/06

Concentrated Extract Volume: 1000(uL) Date Analyzed: 04/24/06

Injection Volume: 2.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: \_\_\_\_\_CONCENTRATION UNITS:

Number TICs found: 3 (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q   
1. 110-82-7	CYCLOHEXANE	3.653 3.903	5000	
3.	PHTHALATE	26.135	80	J

ionville Lab	oratory	Use Only	Cust	ody T	ran	sfe	er I	Rec	ord/	Lab	Wd	ork	Re	qı	ıes	<b>t</b> Pag	ge <u>     (   </u> c	ot	See	s Si	₹ 20	W.
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et Finel Pro	LSamo	ling Date	SAF# T					#/Type (	Container	Liquid Solid		G	G		6		G		G	G	C-	<u>;</u>
oject Conta	ct/Phon	e#		47-0				Volume	· <del>·-</del> -	Liquid Solid			307		309		307		7,09	3,01	707	
inville Labo	ratory F	roject Ma	inager <i>0</i>	20 700		<del>//:</del>		Preserv	lives						-						<u></u>	
Spas	De	7(7	TAT	w iny		<u>:</u>	<del></del> [					ORG	ANIC					ORG	7.0	10 1	11:50	
te Rec'd	4/1	1/06	Date Due	5/12/00	(o			REQUES		<del></del>	δν	BNA	Pest/	Herb	Posi		Metal	Z O	NENS	<i>ל</i> אנן	GHers!	
TRIX 55.							_						<u> </u>	1	1	Lionvil	le Laborat		Only		1	
Soll Sediment Solid Sludge Water	Lab		Cilent ID/Descri	lption		Med Cho (/	C sen	Matrix	Date Collected	Time Collected		OleastH	D008H		CPUB		METALSO		ICACS	EVBVE.	エログ	
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Washington Clos	ure Hanford		Cl	HAII	N OF CUST	CODY/S	AMPL	EQUEST		RC	Page 2 of 3					
Collector STANKOVICH, M.				any Co N KES		Telephor 375-46					roject Coordii ESSNER, JH	nator	Price Code	Data Turnarou <b>n</b> e		
Project Designation 100 & 300 Area Componer	nt of the RCBRA - Increm	ental So		ing Lo -H RIP.	estion ARIAN #9			SAF No. RC-051					Air Quality	Ľ.	45	Day
Ice Chest No.			Field Logbook No. CC EL-1596-1 BES					6520			lethod of Shin FED EX	nient				999
Shipped To EBERLINE SERVICES	LIONVILLE	Prope	erty No.						ill of Lading/ SEE OSPC	Air Bill	No.			<b>6</b> 0		
POSSIBLE SAMPLE HAZ	ARDS/REMARKS								1		7					
NONE			Р	reservation	None	None	None	Neuk	e	j None	None	Nore	None	Neuje	None	
Special Handling and/or	· Storage			Тур	e of Container	G/P	G/P	aG	aG	<u> </u>	μG	аG	G/P	GЛ	^	^
Use page 3 for original material to Corvallis for MIS preparation and					of Container(s)	9	9	ר			7	٦	7	7	Ü	0
aliquoting, page 1 for radioanalytical fractions to Eberline, & for chemical analytical fractions to Liouville.					Volume	30g	30g	30д	30g		30g	30g	30g	30g	1.,	1^
SAMPLE ANALYSIS						See item (1) in Special Instructions,	Claronium Hes - 7196	Semi-VOA - 8270A (TCL)	PAH.	oo,	O Pesticides - 808 i	PCBs - 8	082 IC Ansons - 300.0   Nitrate	NG2/NG3 - 353 2 (Natrogeo in Situae and Natrate)	~	
Sample No.	Matrix *	Samp	e Date		Sample Time					: : :::						<del> </del>
J11JK1	SOIL	4-	0-0	χ.	09:00	3		1				1		7		<del> </del>
JUJK2			Ī		10:38	1	3	3	7			1	1	+		1
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## CH2M HILL Soil Sampling Bench Sheet Spring 2006

Project ID WCH		Project # 336761.	AO.ZZ	
		•	<del></del>	
Site # 100-H RIPARIAN # 9	_	Sample # J11JK1		
Tray #	_	Tare Wt.	450 gm.	
Total Dry Wt. 4695, 3	_gm.	Net Dry Wt. 32	245:3 gm.	
ALL SAMPLES COLLECTED B	ELOW CONSIST OF	•	·	
Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	T 0900	400 g	700.9	1/1/24
RAD STR	10900	30 g	36.1	100
ICP MET	1	30 g	30.1	
HEX CR	<b>†</b>	30 g	30.0	<del>                                     </del>
SEMI VOA	<del>                                     </del>	30 g	30.1	
PEST		30 g	30.1	
РСВ		30 g	30.1	
IC ANION		30 g	30.1	
NO2/NO3		30 g	30.1	
RAD STR MS		30 g	30.0	
RAD STR MSD		30 g	30.1	
ICP MET MS	1	30 g	30.1	
ICP MET MSD	V	30 g	30.3	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
<u> </u>				
Comments:				,
Name (print): Kelly En	Sor	Signature:	lleyEron	
Sub-Sampled Date:	10/06		/	

## CH2M HILL Soil Sampling Bench Sheet Spring 2006

Project ID WCH	-	Project # 336761.	AO.ZZ	
Site# 100-H RIPARIAN # 9	_	Sample # J11JK2		
Tray# <u>52</u>	<b>-</b>	Tare Wt. 14	58 gm.	
Total Dry Wt. 4 274,7	_gm.	Net Dry Wt. 34	20.7 gm.	
ALL SAMPLES COLLECTED BE	LOW CONSIST OF	50 SAMPLE INCREME	NTS	
Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	1038	400 g	1 401.3	The
RAD STR	1000	30 g	30.1	1,3-0
ICP MET		30 g	30.5	<del>-   -  </del>
HEX CR		30 g	32.3	<del>-                                     </del>
SEMI VOA		30 g	30,5	
PEST		30 g	6.3	
PCB		30 g	30.2	
IC ANION		30 g	30.3	
NO2/NO3		30 g	.30.1	
HEX CR MS		30 g	30.2	
HEX CR MSD		30 g	30,4	
SEMI VOA MS		30 g	30.3	
SEMI VOA MSD	Ψ	30 g	30.5	
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Name (print): Kelly &	n5m	Signature:	11/1/2000	
The state of the s	1 1	orginature.	regerra	
Sub-Sampled Date:	10/06		/	

# CH2M HILL Soil Sampling Bench Sheet Spring 2006

Project ID	WCH	•	Project # 336761.A	O.ZZ	
Site#	100-H RIPARIAN # 9		Sample # J11JK3		
Tray#_	2.7		Tare Wt. 146	O gm.	
Total Dry V	n. 4566.9	gm.	Net Dry Wt. 310	6.9 gm.	
ALL SAMP	LES COLLECTED BE	LOW CONSIST OF	50 SAMPLE INCREME	NTS	
			1		<del></del>
	Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	····	12:00	400 g	400.57	I AW
RAD STR		12.00	30 g	30.20	1
ICP MET	<del></del>		30 g	30.08	<del>-                                     </del>
HEX CR		<u> </u>	30 g	30.07	
SEMI VOA			30 g	30.17	1
PEST			30 g	30,36	<del>-  </del>
PCB			30 g	30.00	<del>-   -  </del>
IC ANION			30 g	30,14	
NO2/NO3	·		30 g	30,02	1
PEST MS			30 g	30.22	-11
PEST MSD			30 g	30.25	1 1
PCB MS			30 g	30,09	1 1
PCB MSD			30 g	30.09	
	<del></del>	<del></del>			
					<u> </u>
Comments	;				·
<del></del>					
			<del></del>		
Name (prin	u: Ashley Wi	le	Signature:	uy Buil	

Sub-Sampled Date: 4/10/06

# CH2M HILL Soil Sampling Bench Sheet Spring 2006

Project ID WCH		Project # 336761.A	0. <u>zz</u>	
Site # 100-H RIPARIAN # 9		Sample # J11JK4		
Tray# 2553	-	Tare Wt ー ー ー ー ー ー ー ー ー ー ー ー ー ー ー ー	∂ gm.	
Total Dry Wt. 4560.1	gm.	Net Dry Wt. 3	gm.	
ALL SAMPLES COLLECTED BE	LOW CONSIST OF 5	50 SAMPLE INCREMEN	its	
Analyte	Sample Time	Grams Needed	Grams Collected	Initials
loca	1 10 67	400	1 120	1 /10-
GEA RAD STR	13.56	400 g	100.3	Mar
ICP MET		30 g	30.1	<del></del>
HEX CR	<del>                                     </del>	30 g	30.0	<del></del>
SEMI VOA	<b></b>	30 g 30 g	30.4	<del></del>
PEST	<del>                                     </del>	30 g	30.3	<del></del>
PCB	<del> </del>	30 g	30.0	<del>  -  </del> -
IC ANION	<del>                                     </del>	30 g	Ţ	<del></del>
NO2/NO3	<del> </del>	30 g	30.0	<del></del>
IC ANION MS	<del> </del>	30 g	30.0	+
IC ANION MSD		30 g	30.1	<del>                                     </del>
NO2/NO3 MS		30 g	50.5	<del>                                     </del>
NO2/NO3 MSD		30 g	30.3	
				<del> </del>
				+
Comments:			1	
			<del></del>	
Name (print): Kelly En	isor_	Signature:	uxmar_	<del> </del>

## CH2M HILL Soil Sampling Bench Sheet Spring 2006

Project ID WCH		Project # 336761.	AO.ZZ	
Site # 100-H RIPARIAN #	<u> </u>	Sample # J11JK5	· · · · · · · · · · · · · · · · · · ·	
Tray# 40		Tare Wt.	1 <u>(</u>	
Total Dry Wt. 4954.7	gm.	Net Dry Wt. 3억	194.7 gm.	
ALL SAMPLES COLLECTED	BELOW CONSIST OF	50 SAMPLE INCREME	ENTS	
Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	14:00	400 g	405.95	Kim
RAD STR	17.00	30 g	30:90	
ICP MET		30 g	30.23	1
HEX CR		30 g	30.09	
SEMI VOA		30 g	30,10	
PEST		30 g	30.46	
PCB		30 g	30, 40	
IC ANION		30 g	31.23	
NO2/NO3		30 g	30.61	
ICP MET MS		30 g	30.80	
ICP MET MSD		30 g	30.39	
HEX CR MS		30 g	30.05	
HEX CR MSD		30 g	30.56	
Comments:				
Name (print): Kazıc YY Sub-Sampled Date: 04/	•	Signature: Kloca	E-Mufg	

# Lionville Laboratory Incorporated SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT:

Purchase Order / Project# / SAF# / SOW# / Release #;

LvLI Batch #:

Date:

Sample Custodian:

	NOTE: EXF	LAIN ALL DIS	SCREPANCII	es	
1.	Samples Hand Delivered or Shipped	Carrier (	ed Ex	Airbill# 65	595-063135
2.	Custody seals on coolers or shipping container intact, signed and dated?	D,XES	□ No	□ No Seals	Comments
3.	Outside of coolers or shipping containers are free from damage?	ПХE	□N <sub>0</sub>		
4-	All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?	ZYes	□ No	·	
5.	Samples received cooled or ambient?	Temp /7	⊬ °C	Cooler#	
6.	TR Custody seals on sample containers intact, signed and dated?	D/fes	□ No	□ No Seals	
7.	coc signed and dated?	Z Yes	□ No		
8.	Sample containers are intact?	DYES DE	□ No		
9.	All samples on coc received? All samples received on coc?	W Yes	WN0 #00	5 M For Anims be one Each For 8990 + 707. St o	, NOT REC'S 1 \$4005 FOT STRANTIC ECORDING TO LHEUL
10.	All sample label information matches coc?	ØYes	□ No		
11.	Samples properly preserved?	Ġ Yœ	□ No		
12.	Samples received within hold times? Short holds taken to wet lab?	Yes	□ <b>№</b>		
13.	VOA, TOC, TOX free of headspace?	□ Yes	□ No	<b>אאם</b>	
14.	QC stickers placed on bottles designated by client?	QXs	□ No	□ N/A	·
15.	Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy)	DYs	□ No	فكالم	
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	0.xe	□ No	P No Discrepancies	

# Lionville Laboratory, Inc. & Structure of the control of the contr

LAT TOL # : 0.20 1102550

DATE RECEIVED: 04/12/06

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS		
J11JK1	001	s	06LE0312	04/10/06	04/23/06	05/04/06		
J11JK2	002	S	06LE0312	04/10/06	04/23/06	05/04/06		
J11JK3	003	S	06LE0312	04/10/06	04/23/06	05/05/06		
J11JK3	003 MS	s	06LE0312	04/10/06	04/23/06	05/05/06		
J11JK3	003 MSD	S	06LE0312	04/10/06	04/23/06	05/05/06		
J11JK4	004	s	06LE0312	04/10/06	04/23/06	05/05/06		
J11JK5	005	S	06LE0312	04/10/06	04/23/06	05/05/06		

LAB QC:

PBLKGG	MB1	S	06LE0312	N/A	04/23/06	05/03/06
PBLKGG	MB1 BS	S	06LE0312	N/A	04/23/06	05/03/06

ga , 1.1/c



#### Case Narrative

Client: TNU-HANFORD RC-051

**LVL#:** 0604L752

SDG/SAF # K0302/RC-051

**W.O.** #: 11343-606-001-9999-00

**Date Received: 04-12-2006** 

#### **CHLORINATED PESTICIDES**

Five (5) soil samples were collected on 04-10-2006.

The samples and their associated QC samples were extracted on 04-23-2006 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 05-03,04,05-2006. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8081. All soil samples are reported on a dry weight base unless requested by the client, required by the method or noted otherwise.

The following is a summary of QC results accompanying the sample results. Lionville Laboratory Inc (LvLI) certifies that all test results meet the requirements of NELAC except as noted below:

- 1. Samples were extracted and analyzed within required holding time.
- 2. The samples and their associated QC samples received Copper-Sulfur cleanups according to Lionville Laboratory SOPs based on SW846 methods 3660A respectively.
- 3. The method blank was below the reporting limits for all target compounds.
- 4. Eight (8) of eighteen (18) surrogate recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 06GC151) has been enclosed.
- 5. The blank spike recoveries were within acceptance criteria.
- 6. All matrix spike recoveries were within acceptance criteria.
- 7. The results for soil samples were reported on a wet-weight basis.
- 8. All samples required a 4-fold instrument dilutions due to matrix. Reporting limits have been adjusted to reflect the necessary dilutions.
- 9. The initial calibrations associated with this data set were within acceptance criteria.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of pages.

- 10. The continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
- 11. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
- 12. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

Iain Daniels

Laboratory Manager

Lionville Laboratory Incorporated

 $kim\r:\group\data\pest\tnu\ hanford\0604-752.pst$ 

5/11/06 Date



LIUIIVIIIE LADUIAIUIY O	SDR #: 00 GC /4 /
Initiator:	Batch: 0004L152 Parameter: PKST
Date: 5/1/04	Samples: 01, 003 0035, 005T, 07 004 Matrix: 50r
Client: TW	Samples: 01, 103 0135, 0031, 004, 004 Matrix: Sor Method: SW846MCAWW/CLP/ Prep Batch: 06LK-03/2
1. Reason for SDR a. COC Discrepancy Tech Profile	e Елгог Client Request Sampler Елгог on C-O-C
Transcriptio	
b. General Discrepancy	
Missing Sample/Extract Co Hold Time Exceeded Ins	
Hold Time Exceeded ins Improper Bottle Type No	sufficient Sample Preservation Wrong Received Past Hold t Amenable to Analysis
Note*: Verified by [Log-In] or [Prep Group] (circ	•
c. Problem (Include all relevant specifi	fic results; attach data if necessary)
	vies were high in most samples.
J	
ĺ	
The Course (n)	
2. Known or Probable Causes(s)	
3. Discussion and Proposed Action	Other Description:
Re-log Entire Batch	Other Description:  Nanate - high recovers paginable  Recent acceptance entire (20-20?  No significant input top Lite
Following Samples:	- portone enterio (200-20%
Re-leach Re-extract	Here any or imput tel dolla
Re-digest	we significan to
Revise EDD Change Test Code to	JAZ J''
Change Test Code to Place On/Take Off Hold (circle)	- //
4. Project Manager Instructionssignal	ats would at a
Concur with Proposed Action	
Disagree with Proposed Action; Se Include in Case Narrative	e Instruction
Client Contacted:	
Date/Person	
Add Cancel	0,1
5, Final Actionsignature/date:	Other Explanation:
Verified re-[log][leach][extract][diges	stjeralysis (circle)
Included in Case Narrative Hard Copy COC Revised	
Electronic COC Revised	<b>,</b>
EDD Corrections Completed When Final Action has been recorded	
	I, forward original to QA Specialist for distribution and filing.
Route Distribution of Completed SDR X Initiator	Route Distribution of Completed SDR  Metals: Beegle
XLab General Manager: M. Ta	aylor Inorganic: Perrone
X Project Mgr: Stone/Johnson	GC/LC: Kiger
Data Management: Stilwell Sample Prep: Beegle/Kiger	MS: Rychlak/Daley Log-in: Perry
	Admin:



#### **GLOSSARY OF DATA**

#### DATA QUALIFIERS

- Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
- J = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
- E Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- Interference.
- Indicates an interference on one analytical column only. Result is reported from remaining analytical column.

#### **ABBREVIATIONS**

- BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD = Indicates blank spike duplicate.
- MS = Indicates matrix spike.
- MSD = Indicates matrix spike duplicate.
- DL = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
- NA = Not Applicable.
- DF = Dilution Factor.
- NR = Not Required.
- NS = Not Spiked.
- SP = Indicates Spiked Compound.
- P = This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
- This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- This flag applies to a compound that has been confirmed by GC/MS.
- NPM = No pattern match for multi-component target analytes.

#### Lionville Laboratory, Inc.

Pesticide/PCBs by GC, CLP List

Report Date: 05/11/06 14:19 Client: TNUHANFORD RC-051 K0302 Work Order: 11343606001 Page: 1 RFW Batch Number: 0604L752

	Cust ID:	J11JK1	J11JK2	2	J11JK3	3	J11JK	3	<b>J11JK</b> 3	1	J11JK	<b>4</b>
Sample	RFW#:	001	002		003		003 MS		003 MSD		004	
Information	Matrix:	SOIL	SOIL		SOIL		SOIL		SOIL		SOIL	-
	D.F.:	4.00	4.0	0	4.0	00	4.	00	4.0	0	<del>.</del>	00
	Units:	UG/KG	UG/1	KG	UG/K	(G	UG/	KG	UG/K		UG/	
	loro-m-xylene	122 * %	108	<del>-</del> %	123 *	* %	123	* 왕	121 *	*	119	* %
Decac	hlorobiphenyl	118 %	108	욯	123 *		120	*	115	8	116	· %
	=======================================	=====fl==	=======================================	=fl==	========	==fl==	=======	==fl=:		=f1==	======	==fl
Alpha-BHC		1.3 U	1.3	Ü	1.3	U	94	ક્ર	84	¥	1.3	
gamma-BHC (Lindane)_		1.3 U	1.3		1.3	U	100	8	87	¥	1.3	_
Beta-BHC		1.3 U	1.3	U	1.3	U	107	8	96	ę.	1.3	_
Heptachlor	<u> </u>	1.3 ປັ	1.3	U	1.3	U	98	*	89	ŧ	1.3	_
Delta-BHC		1.3 U	1.3	U	0.90	J	84	ક	74	ક	1.3	_
Aldrin		1.3 U	1.3	U	1.3	U	92	&	82	*	1.3	
Heptachlor epoxide		1.3 U	1.3	U	1.3	U	96	¥	88	ş	1.3	
gamma-Chlordane		1.3 U	1.3	U	1.3	U	93	*	86	ě	1.3	_
Endosulfan I		1.3 ΰ	1.3	Ū	1.3	U	94	*	85	ķ	1,3	-
alpha-Chlordane		1.3 U	1.3	Ü	1.3	Ū	96	ŧ	87	k	1.3	
4,4'-DDE		1.3 U	1.3	ט	0.50	J	94	ł	84	*	0.53	-
Dieldrin		1.3 U	1.3	U	1.3	U	91	*	82	ŧ	1.3	
Endrin		1.3 ប	1.3	U	1.3	U	97	*	86	g.	1.3	_
4,4'-DDD		1.3 U	1.3	U	1.3	Ü	98	*	90	٤	1.3	
Endosulfan II		1.3 U	1.3	U	1.3	U	94	ŧ	87	*	1.3	
4,4'-DDT		1.3 U	1.3	U	1.3	U	90	*	80	*	1.3	_
Endrin aldehyde		1.3 U	1.3	Ū	1.3	υ	94	8	85	ŧ	1.3	-
<pre>Endosulfan sulfate</pre>		1.3 U	1.3	U	1.3	U	92	*	83	¥	1.3	_
Methoxychlor		1.3 U	1.3	Ū	1.3	U	107	*	97	ę.	1.3	_
Endrin ketone		1.3 U	1.3	U	1.3	Ü	99	ŧ	91	*	1.3	
Toxaphene		13 U	13	Ü	13	U	13	Ü	13	Ü	1.3	

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. \*= Outside of EPA CLP QC

Lionville Laboratory, Inc.

Pesticide/PCBs by GC, CLP List

Report Date: 05/11/06 14:19 Client: TNUHANFORD RC-051 K0302 Work Order: 11343606001 Page: 2 RFW Batch Number: 0604L752

					•		
	Cust ID:	J11JK5	PBLKGG		PBLKGG BS		
Sample	RFW#:	005	06LE031	2-MB1	06LE0312-	MTB1	
Information	Matrix:	SOIL	SC	IL	SOIL		
	D.F.:	4.00		1.00	1.0		
	Units:	UG/KG	Ū	G/KG	UG/I	KG	
Surrogate: T	Cetrachloro-m-xylene	124 * %	10	6 %	117	*	
-	Decachlorobiphenyl	127 * %		8 %		*	
	*********	=======================================	1=======	====f	l=========	==fl=	======f1=======f1========
Alpha-BHC		1.3 (		33 U	100	と	
	ndane)			33 U		ક	
Beta-BHC_		1.3 (		33 U	100	ŧ	
Heptachlor	·	1.3 (		33 U		ક્ર	
Delta-BHC		1.3	υ.	33 U	89	ક	
Aldrin		1.3 (		33 U		*	
Heptachlor epo	oxide	1.3 (		33 U		f	
gamma-Chlordan	ne	1.3 (		33 U		*	
		1.3 (		33 U		*	
	ne	1.3		33 A		*	
		1.6		33 A		*	
		1.3		33 U		*	
		1.3		33 U		*	
4,4'-DDD		1.3 (		33 U		*	
Endosulfan II_		1.3		33 U		ક્ર	
		0.77	υ.	33 U	87	¥	
Endrin aldehyd	de	1.3		33 U		*	
Endosulfan sul	lfate	1.3		33 U		*	
Methoxychlor_		1.3		33 U		*	
Endrin ketone		1.3		.33 U		*	
Toxaphene		13 1	נ ע	3.3 U	3.3	U	

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. \*= Outside of EPA CLP QC

grast-le

Lionville Labo	ratory	Use Only	Custo	ody Tr	ansf	er	Rec	ord/l	Lab	Wo	ork	Re	qu	ıes	<b>t</b> Page	<u>, (</u> o	of	See	SF	ر ۲0	Extra
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Client //// -		The rest of the second	SAFE D	<u>C-05/</u>	1000年 1000年	andre de la compansión de La compansión de la compa		Container	Liquid		-										9999
Project #/			-001-99	99-00		- <del></del> -			Solid		G	G	_	6		G	<del> </del>	ن	Gr	<u></u>	<u> </u>
Project Contac			A STATE OF THE STA		<u> </u>		Volume		Liquid Solid		, .										
Lionville Labor							Preserv	stives	Suite	-	307	307	-	309		307	<del> </del> -	347 	<u>多</u> 约	<u> 397</u>	<del></del>
oc Sple	De	ol <u>Sta</u>	TAT	o cays	<u></u>	<u></u>	ļ		<del></del>	<u> </u>	ORG	ANIÇ				INC	JAG	T.C	14.2	11-50	
Date Rec'd	4/1	2/06	Date Due	5/12/06	<u>,                                     </u>	<u> </u>	REQUE		<b>→</b>	Ş	BNA	Pest/	Herb	Pesi		Metai	8	NEW	135	The sales	
MATRIX	<u> </u>						<del>                                     </del>	Ţ					1		Lionville	Laborate	ory Use	Only		1	
CODES:  S. Soll SE Sediment SO Solid SI Sludge W Water	Lab ID		Client ID/Descri	ption	Ch	atrix QC osen (/)	Matrix	Date Collected	Time Collected		01025H	H300Q		CPUB		METALS		ICAR3	ENENI	ICKE	
O - O# * 6	001	7/17	*			1	Sil	4-10-06	0900		*/×	1		7	<del> </del>	3	1	1	7	7	
US-UNIM	412	1		31.55				100	1038		3	7		7		1	<u> </u>	,	,	5	
Uquids	au3	1	3			17	10 g 2 d 2 d	1-2-5	/200	-7.5	10	3		3		1		,	1	1	
L - EP/TCLP Leachate	014	The state of the s	4			1			1356	1.2	7	1		1		1		3	3	1	
WI - Wipe X - Other	005		5	Fig			- L	ئى <b>ل</b> ىقى ا	1400	-"14"	1	7				3		1	1	3	
F - Fish							. T														
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No 7,50L		#00-0	01 MA 02 BNA, 03 Past. 04 IC ANION	Het CHRIM PCB		DATE	15	ons: _ 1.	æ	on	So	googl	e I	27/	1-IK	5			· <del></del>	- 101 - 00 - 01 - mann	
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METALS	กะ	USI +B	'Alin	10.P. Si.	Sc			_4	<u>~</u>	<del></del>	<del></del>		260	8H	<u>;                                    </u>	<del></del>			·		
		Sn, u	(No Hg		<del>-</del> ',	_		_													
Relinquished	3	Received by	Date	Time		quished by		Received	1	Date	TI	me	F	lelinqu by		Re	ceived		Dato	Tin	ne
F.08	<b>,</b>	1/2/	1/2/6	0925		<u></u>							4	COI	MPOSI	E		OR	GIN	4	
1.65	-		1/26					<del> </del>			1	$\neg \uparrow$			ASTE"			اللسا	RIT	i	

Washington Closu	re Hanford		CI	HAIN OF CUST	CODY/S	AMPL	E ANAL	YSIS	R	EQUEST		J	RC-051-	112	Fage 2	of 3
Collector STANKOVICH, M.				ny Contact N KESSNER	Telepho 375-4					roiect Coordii ESSNER, JH	nator	Price Code	8L			urnarou <b>©</b> d
Project Designation 100 & 300 Area Component	of the RCBRA - Increm	ental So		ing Location H RIPARIAN #9						AF No. C-051		Air Qual	ity []		45	Day
Ice Chest No.				⊾ogbeok No. 1596-1		COA BESRAS	6520		M	ethod of Ship FED EX	ment					
Shipped To EBERLINE SERVICES (LI	ONVILLE			Property No.						ill of Lading/ SEE OSPC	Air Bill I	No.				_
POSSIBLE SAMPLE HAZ	RDS/REMARKS				1	1				71			}			
NONE				Preservation	Name	None	None	Non	• /	Nosie	Nunc	None	N	tone.	Neur	Neste
Special Handling and/or 5	Storne			Type of Container	G/P	G/P	яG	aG	Ī	øG	аG	GIP		i/P	^	^
Use page 3 for original mater	ial to Corvallis for MIS	preparatio	n and	No. of Container(s)	9	9	17		<del>-,-</del>	7	Γ	7	•	7	C	0
aliquoting, page I for vadioan for chemical analytical fraction		erline, & p	age 2	Volume	30g	30g	30g	301	7	30g	30g	30g	7	Юţ	[4	In
See hem (i) in Special Instructions.  SAMPLE ANALYSIS  See hem (i) in Special Instructions.  SAMPLE ANALYSIS  See hem (i) in Special Instructions.  Chountiant Hex • 7196 B270A (TCL)  PAHs \$310 Pexicides - PCBs • 8082 IC Anams - 353.2   Point open at Nitrate mad Nitrate in Mirate.																
Sample No.	Matrix *	Samp	le Date	Sample Time			15 13 E.		75.			1	_ -			<del> </del>
J11JK1	SOIL	4-	(0-0	X 09:00	3	1	1	1		1	-	1		7		
JIIJK2			Ī	10:38	1	3	3	7		1	1	1	7	-		
J11JK3				12'.00	ŀ	Ī	1	17		3	3	1	ī		·	T
JIJKY			1	13:56	l	1	١	/		1	_	3	3		· <del></del>	<b>†</b>
JIIJ K5	1			14:00	3	3	l l			1	_	1	1		<del></del>	
CHAIN OF POSSESSIO	N		gn/Print	Names		SPE	CIAL INSTE	UCTIO	ONS	<u>-</u>		·				Matrix *
Rejinquished By/Removed From  Date/Time    30   Received By/Stored In   Date/Time   1/30   Received By/Stored In   Date/Time   1/30   Contact Joan Kessner for any questions.  Contact Joan Kessner for any questions.    Contact Joan Kessner for any questions.   Stored In   Stored In   Stored In   Stored In   Stored In   Date/Time   Cadmium, Chriming, Antinony, Arsenic, Barium, Berythium, Bismail, Horon.   Cadmium, Chriming, Chriman, Chriming, Chriming, Chriman, Chriming, Chriman, Chriming, Chr									Sife Soldingsi SOn Sold Sie Sindpe W = Water On Od							
Religions Bulkemoved From Date/Time Programd Bulkemout to Date/Time								WinWipe Latingui Va Vegetina u XaOuber								
Relinquished By/Removed From	Date/Time	Receive	d By/Stor	ed in D	ate/Time											
LABORATORY Received B	у	<u> </u>			Ti	ile	<u></u>					<u></u>	<del></del>	i)	ate/Fune	<u> </u>
FINAL SAMPLE Disposal M DISPOSITION	cthod		<del></del> -				Dispo	sed By	•			·····		1.	Date/l'irre	

Project ID WCH	<del></del>	Project # 336761.	AO.22	
Site# 100-H RIPARIAN #	<del>‡</del> 9	Sample # J11JK1		
Tray# <u>/3</u>	<del></del>	Tare Wt.	450 gm.	
Total Dry Wt. 4695, 3	gm.	Net Dry Wt. 3	245,3 gm.	
ALL SAMPLES COLLECTED	BELOW CONSIST OF	50 SAMPLE INCREME	ENTS	
Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	10960	400 g	700.9	1/121
RAD STR	10-700	30 g	30,1	1
ICP MET		30 g	30.1	<del></del>
HEX CR		30 g	30.0	
SEMI VOA		30 g	30.1	<del></del>
PEST		30 g	30.1	
PCB		30 g	30.1	
IC ANION		30 g	30.1	
NO2/NO3		30 g	30.1	
RAD STR MS		30 g	30.0	
RAD STR MSD		30 g	30.1	
ICP MET MS	1/	30 g	3011	
ICP MET MSD	<u> </u>	30 g	30.3	V
Comments:				
Name (print): Kelly Ex	150r 110/06	Signature:	Muxnow	

Project ID WCH	1			Project #	336761.AC	.ZZ	_		
Site # 100-l	H RIPARIAN # 9			Sample #	J11JK2				
	<u></u>	-				. 0	_		
Tray#	) <i>A</i>	-		Tare Wt.	145	<u>8</u>	_gm.		
Total Dry Wt.	T. 278 P	gm.		Net Dry W	nt. 342	2017	_gm.		
ALL SAMPLES	COLLECTED BE	LOW CON	SIST OF 50	SAMPLE	NCREMEN'	rs			
Anai	yte	Sample Ti	ime	Grams Ne	eded	Grams C	ollected	Initia	ls
GEA		103	0	400	\ \ \	73.7	11.3	T /	در
RAD STR	· · · · · · · · · · · · · · · · · · ·	102	<u> </u>		) g		0 1	<del>1 ~~</del>	
ICP MET	······································	<del>  -</del>			) g	3		╂╌╾┨	
HEX CR					) g		0.3	+	
SEMI VOA			<u></u>	30			0.5	1-1	
PEST	<del></del>				) g		٠,3 ٥,3	1	
PCB				30			0.2	17	
IC ANION			,, <u> </u>		) g		>.3	$\top$	
NO2/NO3					) g		0.1		
HEX CR MS					) g		ري_		
HEX CR MSD					g		0,4	$I \square$	
SEMI VOA MS				30	) g		). <b>3</b>		
SEMI VOA MSD	)	Ψ		30	) g	3	0.5	-\J	<u> </u>
								<del> </del>	
		<u> </u>						<u> </u>	
Comments:				<del></del>					
Name (print):	KellyE	nsor	-	Signature	: [[[	lyEn	×		
Cub Campled D	nto. 411	In law				/			

•				
Project ID WCH	_	Project # 336761./	AO.ZZ	
Site# 100-H RIPARIAN # 9	-	Sample # J11JK3	· · · · · · · · · · · · · · · · · · ·	
Tray# <u>2.7</u>		Tare Wt. 146	gm.	
Total Dry Wt. 4566.9	_gm.	Net Dry Wt. 310	96.9 gm.	
ALL SAMPLES COLLECTED BE	ELOW CONSIST OF	50 SAMPLE INCREME	NTS	
Analyte	Sample Time	Grams Needed	Grams Collected	initials
CEA	12:00	400 a	10057	TAW
GEA RAD STR	12.00	400 g	400,57	- 700
	<del> </del>	30 g	30.20	1-1-
ICP MET	<del> </del>	30 g	30.08	<del></del>
HEX CR	<del>  </del>	30 g	30.07	<del></del>
SEMI VOA	<del>                                     </del>	30 g	30,17	<del>-   -  </del>
PEST	<del>                                     </del>	30 g	30,36	<del>-  </del> -
PCB		30 g	30,00	<del></del>
IC ANION	<del>                                     </del>	30 g	30.17	<del>-   </del>
NO2/NO3		30 g	30.02	<del></del>
PEST MS	<u> </u>	30 g	30.22	<del></del>
PEST MSD		30 g	30.25	
PCB MS		30 g	30,09	<del>-   -  </del>
PCB MSD	ــــــــــــــــــــــــــــــــــــــ	30 g	30.09	<u> </u>
	<u> </u>	_		<del>- </del>
		·	<del></del>	
	<u> </u>			<del></del>
	<del> </del>	<del> </del>		
	<del> </del>			
	<u> </u>			
Comments:				
				·
Name (print): Ashley Wi	lle	Signature:	hey suil	,

Sub-Sampled Date:  $4/c/c\phi$ 

Project ID WCH	· 	Project # 336761	AO.ZZ	
Site # 100-H RIPARIAN # 9	l	Sample # J11JK4		
Tray # 2 53	<del>-</del>	Tare Wt. 140	gm.	
Total Dry Wt. 4560.1	_gm.	Net Dry Wt. 3	1001 gm.	
ALL SAMPLES COLLECTED B	ELOW CONSIST OF	50 SAMPLE INCREME	INTS	
Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	1356	400 g	400.3	her
RAD STR	1319-	30 g	30 (	1
ICP MET	<del></del>	30 g	30.0	<del></del>
HEX CR	<del></del>	30 g	30,4	1 1
SEMI VOA	<del>†                                      </del>	30 g	30.3	
PEST	<del></del>	30 g	30.2	
PCB		30 g	30.0	1
IC ANION	<u> </u>	30 g	1.05	
NO2/NO3	<del></del>	30 g	30.0	1
IC ANION MS		30 g	30.3	1
IC ANION MSD		30 g	30.1	
NO2/NO3 MS	<del>                                     </del>	30 g	30.5	<del></del>
NO2/NO3 MSD		30 g	30.3	
ļ	<del>-</del>			
<u> </u>				
Comments:				
Name (print): Kelly Er	150r 0/06	Signature:	Sufenor	

Project ID WCH		Project # 336761	۵O 77	
	<del>-</del>	. 10]600 m <u>550101.</u>		
Site# 100-H RIPARIAN # 9	<del>_</del>	Sample # J11JK5		
Tray# 40	_	Tare Wt.	(	
Total Dry Wt. 4954.7	_gm.	Net Dry Wt. 34	94,7 gm.	
ALL SAMPLES COLLECTED BE	ELOW CONSIST OF	50 SAMPLE INCREME	NTS	
Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	14:00	400 g	405.95	IZM
RAD STR	1	30 g	30.90	<del>                                     </del>
ICP MET		30 g	30.23	<del>-  </del>
HEX CR		30 g	30.09	<del></del>
SEMI VOA		30 g	30.10	1-1
PEST		30 g	30.46	
PCB		30 g	30, 40	<del>                                     </del>
IC ANION		30 g	31.23	<del>-    </del>
NO2/NO3	<del>                                   </del>	30 g	30.41	<del></del>
ICP MET MS		30 g	30.80	<del>                                     </del>
ICP MET MSD		30 g	30.39	1
HEX CR MS	<del> </del>	30 g	30.05	+
HEX CR MSD		30 g	30.56	
			42-130	
	<del></del>			
			<del></del>	<del>                                     </del>
Comments:				
		***************************************		· · · · · · · · · · · · · · · · · · ·
Name (print): Katic Ma	reu	Signature: Kuck	2 Marss	
Sub-Sampled Date: 04/10/	<b>~</b>			

### Lionville Laboratory Incorporated SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT:

Purchase Order / Project# / SAF# / SOW# / Release #:

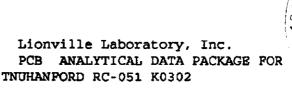
LvLI Batch #:

Date:

Sample Custodian:

	NOTE: EXP	LAIN ALL D	SCREPANCII	ES	
1.	Samples Hand Delivered of Shipped	Carrier (	ed Er	Airbill# 6:	595-0631357
2.	Custody seals on coolers or shipping container intact, signed and dated?	D.XES	O No	🗀 No Scals	Comments
3.	Outside of coolers or shipping containers are free from damage?	□ x4s	□ No		
4.	All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?	ZYes	□ No		
5.	Samples received cooled or ambient?	Temp /7-	4 °C	Cooler#	
6.	Custody seals on sample containers intact, signed and dated?	Pre	□ No	□ No Seals	
7.	coc signed and dated?	ØYes /	□ No		•
8.	Sample containers are intact?	D'es	□ N <sub>0</sub>		
9.	All samples on coc received? All samples received on coc?	M Yes	WNo #00	5 M For Anishs become Each Fo 8990 TTST. Se o	, NOT REED TRONTICUM TROOF FOR STRONTICUM ECORDING TO LABOL
10.	All sample label information matches coc?	El Yes	□ No		
11.	Samples properly preserved?	ti Yes	□ No	•	
12.	Samples received within hold times? Short holds taken to wet lab?	D Yes	□ No		
13.	VOA, TOC, TOX free of headspace?	. 🗆 Yes	□ No	DNA	
14.	QC stickers placed on bottles designated by client?	D)Xes	□ No	□ N/A	
15.	Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy)	D/a	□ No	. sebe	
16	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	DXs	. □ No	E No Discrepancies	·





DATE	RECEIVED:	04/	12/	<b>/06</b>
------	-----------	-----	-----	------------

* * *	T.OT				
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CLIENT ID	LVL	#	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J11JK1	001		s	06LE0313	04/10/06	04/23/06	05/05/06
J11JK2	002		S	06LE0313	04/10/06	04/23/06	05/05/06
J11JK3	003		S	06LE0313	04/10/06	04/23/06	05/05/06
J11JK3	003	MS	S	06LE0313	04/10/06	04/23/06	05/05/06
J11JK3	003	MSD	S	06LE0313	04/10/06	04/23/06	05/05/06
J11JK4	004		S	06LE0313	04/10/06	04/23/06	05/05/06
J11JK5	005		s ·	06LE0313	04/10/06	04/23/06	05/05/06
LAB QC:							
<del></del>							
PBLKGJ	MBl		s	06LE0313	N/A	04/23/06	05/04/06
PBLKGJ	MB1	BS	S	06LE0313	N/A	04/23/06	05/04/06

g=1.1



#### Case Narrative

Client: TNU-HANFORD RC-051

**LVL** #: 0604L752

**SDG/SAF** # K0302/RC-051

W.O. #: 11343-606-001-9999-00 Date Received: 04-12-2006

#### **PCB**

Five (5) soil samples were collected on 04-10-2006.

The samples and their associated QC samples were extracted on 04-23-2006 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 05-04,05-2006. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8082. All soil samples are reported on a dry weight base unless requested by the client, required by the method or noted otherwise.

The following is a summary of QC results accompanying the sample results. Lionville Laboratory Inc (LvLI) certifies that all test results meet the requirements of NELAC except as noted below:

- 1. Samples were extracted and analyzed within required holding time.
- 2. The samples and their associated QC samples received Copper-Sulfur and Sulfuric Acid cleanups according to Lionville Laboratory SOPs based on SW846 methods 3660A and 3665A respectively.
- 3. The method blank was below the reporting limits for all target compounds.
- 4. All surrogate recoveries were within acceptance criteria.
- 5. The blank spike recoveries were within acceptance criteria.
- 6. All matrix spike recoveries were within acceptance criteria.
- 7. The results for soil samples were reported on a wet-weight basis.
- 8. The initial calibrations associated with this data set were within acceptance criteria.
- 9. The continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 1 3 pages.

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- 10. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
- I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

Iain Daniels

Laboratory Manager

Lionville Laboratory Incorporated

kim\r:\group\data\pest\tnu hanford\0604-752.pcbs

STulo 6





### **GLOSSARY OF DATA**

### DATA QUALIFIERS

- Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
- J = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
- E Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- I = Interference.
- Indicates an interference on one analytical column only. Result is reported from remaining analytical column.

#### **ABBREVIATIONS**

- BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD = Indicates blank spike duplicate.
- MS = Indicates matrix spike.
- MSD = Indicates matrix spike duplicate.
- DL = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
- NA = Not Applicable.
- DF = Dilution Factor.
- NR = Not Required.
- NS = Not Spiked.
- SP = Indicates Spiked Compound.
- P = This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
- This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- This flag applies to a compound that has been confirmed by GC/MS.
- NPM = No pattern match for multi-component target analytes.

#### Lionville Laboratory, Inc.

PCBs by GC

Report Date: 05/11/06 11:57 Client: TNUHANFORD RC-051 K0302 Work Order: 11343606001 Page: 1 RFW Batch Number: 0604L752

	Cust ID:	J11JK1	•	J11JK2		J11JK3	i	<b>J11JK</b> 3	,	J11JK3		J11JK4	i
Sample	RFW#:	001		002		003		003 MS	}	003 MSE	•	004	į.
Information	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.0	10	1.0	0	1.0	0	1.0	10	1.0	0	1.0	<b>)</b> 0
	Units:	UG/K	CG	UG/F	:G	UG/K	G.	UG/K	G	UG/K	(G	UG/K	(G
Surrogate:	Tetrachloro-m-xylene	103	*	93	ક	101	8	96	ક	95	*	94	- 8
_	Decachlorobiphenyl	110	*	96	ક	109	*	101	웋	100	*	100	*
		*=======	-fl		=fl==	*======	=f1==		=fl=		=fl==		≖≕f
Aroclor-1016	5	13	Ū	13	U	13	U	98	*	93	*	13	U
Aroclor-1221		13	U	13	U	13	U	13	U	13	U	13	U
Aroclor-1232		13	Ü	13	U	13	U	13	ט	13	U	13	U
Aroclor-1242		13	U	13	Ū	13	U	13	บ	13	U	13	U
Aroclor-1248	· · · · · · · · · · · · · · · · · · ·	13	U	13	Ū	13	U	13	U	13	U	13	U
Aroclor-1254		13	U	13	U	13	U	13	Ū	13	U	13	U
Aroclor-1260		6.3	J	2.1	J	4.1	J	113	*	95	*	3.6	J

	Cust ID:	J11JK5	5	PBLKGJ		PBLKGJ BS		
Sample Information	RFW#: Matrix: D.F.: Units:	005 SOIL 1.( UG/F	00	06LE0313-N SOIL 1.0 UG/F	00	06LE0313-1 SOIL 1.( UG/I	00	
Surrogate:	Tetrachloro-m-xylene Decachlorobiphenyl	100 104	*	99 102	*	100 104	<b>%</b>	
**********	becaciio:obipheny:		•=fl		==fl		-	======fl======fl=====fl========fl
Aroclor-1016	5	13	U	13	U	89	ક	1
Aroclor-1221	i	13	บ	13	U	13	U	
Aroclor-1232	2	13	U	13	U	13	Ü	101
Aroclor-1242	2	13	U	13	U	13	U	
Aroclor-1248	3	13	U	13	U	13	U	Un'
Aroclor-1254		13	U	13	U	13	U	
Aroclor-1260	o	3.3	J	13	U	90	웋	·

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. \*= Outside of EPA CLP QC

16040			SAFET	PLATI	gy and yellow y	ا ينايد	Refriger	ator#		<del>                                     </del>	12.	2		6,1		1/2	<u></u>	W/	77	5/	
Final Prol.	Samol	ling Date					#/Type (	Container	Liquid Solid		G	G		4		G		G	G-	C-	
ject Contac	t/Phon	e #		47-00			Volume		Liquid Solid		317	309		309		307		3-1	ಪ್ರತಿಗ	70)	
Sele:	atory P	roject ma	nager OJ	30 Muss			Preservi	rtivea						=					 		
•			Date Due	Ü			ANALYS REQUES			VO A	ORG VN M	ANIC Assal	Herb	Cosi		Metal	ORG N	EC WELS		Chilesia Chilesia	
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Soll Sediment Solid Skidge Water	Lab ID	·	Client ID/Descri	l <b>ptio</b> n	Cho (-	itrix IC osen /) MSD	Matrix	Date Collected	Time Collected		HSE010	DUOSH		Оргв		METRISO		120163	5/18/13	シメンエ	
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Other Fish	005			ALCONOMICS			- de	32.00	1400	24,5	1	1./		1		3		1	/	3	
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Washington Closure Hanford CHAIN OF CUSTODY/S				FODY/S	AMPLI	EANAL	YSIS	RF	EQUEST		RC	-051-112	Project 2	ાં ો	
Collector STANKOVICH. M.		·		any Contact N KESSNER	Telephor 375-40					icct Coordi	nator	Price Code	8L	Data Ti	Æ
Project Designation 100 & 300 Area Compone	nt of the RCBRA - Incre	mental So		iing Location -H RIPARIAN #9					SAI RC-	F No. -051		Air Quality	Ľ.	45	Days
Ice Chest No.				Logbook No. 1596-1		COA BESRAS	5520			hod of Ship ED EX	ment				2 2 2
Shipped To EBERLINE SERVICES	LIONVILLE			Property No.						of Ladine/	Air Bill N	ło.			
POSSIBLE SAMPLE HA	LARDS/REMARKS				1			[ ·	-H		ĺ				
NONE				Preservation	None	None	Notte	Non	• [	None	Nunc	None	Some	None	Sor
Special Handling and/or	· Stavana			Type of Container	G/P	G/P	пG	аG	7	, aG	аG	G/P	G/P	^	^
Use page 3 for original mat	erial to Corvallis for MI	S preparatio	n and	No. of Container(s)	9	9	٦			7	7	77	`7	0	Ü
aliquoting, page I for radio for chemical analytical frac		berline, & p	age 2	Volume	30g	30g	30g	30		30g	30g	30g	30g	1.^	1*
SAMPLE ANALYSIS					See item (3) in Special Instructions.	Chromium Hex - 7196	Sens-VOA - B270A (TCL)	PAHS	o <sub>o</sub>	Pesticides - 8081	PCHs - 80	300.0 {Nitrate}	NOUNO3 - 353 2 [Nitropen in Shrite and Sarnie]		
Sample No.	Matrix *	Samp	le Date	Sample Time			1			<u></u>	<del> </del>			<del> </del>	
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JIIJK2			Ĺ.	10:38	1	3	3	1		1	1		F	······································	
J11JK3				12'.00	1	l	1	17		3	3	,	ī		1
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SECTION													12.	ale/flune	
FINAL SAMPLE Disposal DISPOSITION	Method						Dispo	sed By	····				.;	ate (Pirre	

Project ID WCH		Project # 336761.	AO.ZZ	
Site# 100-H RIPARIAN	# 9_	Sample # J11JK1		
Tray# <u>/3</u>		Tare Wt.	450 gm.	
Total Dry Wt. 4695, 3	gm.	Net Dry Wt. 32	245,3 gm.	
ALL SAMPLES COLLECTED	BELOW CONSIST OF	50 SAMPLE INCREME	ENTS	
		,		
Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	1 /7/80	100 -	TINA	1/04
RAD STR	0400	400 g	400.9	un
ICP MET		30 g 30 g	30.1	<del></del>
HEX CR		30 g	30.1	<del></del>
SEMI VOA	<del></del>	30 g	30.0 (0.1	+
PEST		30 g	30.1	<del></del>
PCB		30 g	30.1	<del>-   -  </del>
IC ANION		30 g	30.1	
NO2/NO3		30 g	30,1	1
RAD STR MS		30 g	30.0	<del>-   -  </del>
RAD STR MSD		30 g		<del> </del>
ICP MET MS	<del>-     ;</del>	30 g	30.1	<del>                                     </del>
ICP MET MSD		30 g	30.3	+ 1/2
	<del></del>	30 9		+ 4
				<del>-</del>
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Comments:				
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,				
Name (print): Kelly &	A 60		11.5	
Name (print): ACIUC		Signature:	Myknow	·
Sub-Sampled Date:	1006	•	/	
	/ /			

Project ID WCH	_	Project # 336761.A	O.ZZ	
Site# 100-H RIPARIAN#9	_	Sample # J11JK2_		
Tray# <u>62</u>	_	Tare Wt. 14	58 gm.	
Total Dry Wt. 4878,7	_gm.	Net Dry Wt. 34	20.7 gm.	
ALL SAMPLES COLLECTED BE	ELOW CONSIST OF	50 SAMPLE INCREME	NTS	
Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	1038	400 g	401.3	Rec
RAD STR	i	30 g	30 - 1	
ICP MET		30 g	30.5	
HEX CR		30 g	30.3	
SEMI VOA		30 g	30.5	
PEST		30 g	20.3	
PCB		30 g	30.2	
IC ANION		30 g	<b>₹</b> 25.₹	
NO2/NO3		30 g	.30.1	
HEX CR MS		30 g	30.2	
HEX CR MSD		30 g	30,4	
SEMI VOA MS		30 g	30.3	
SEMI VOA MSD		30 g	30.5	
			T	1 -
			·   · · · · · · · · · · · · · · · · · ·	
	1			
Comments:				
Name (print): Kelly &	.n5 <i>o</i> r	Signature:	llyEuser	

Sub-Sampled Date:

•				
Project ID WCH	<del></del>	Project # 336761.	AO.ZZ	
Site # 100-H RIPARIAN #	9	Sample # J11JK3		
Tray # 2.7		Tare Wt. 140	⊝	
Total Dry Wt. 4566.9	;gm.	Net Dry Wt. 310	06.9 gm.	
ALL SAMPLES COLLECTED	BELOW CONSIST O	F 50 SAMPLE INCREME	ENTS	
<u> </u>		<u> </u>		1
Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	12:00	400 g	400.57	Taw
RAD STR	12.00	30 g	30.20	1 70
ICP MET		30 g	30.08	<del></del>
HEX CR		30 g	30.07	
SEMI VOA		30 g	30.17	
PEST		30 g	30,36	
PCB		30 g	30,00	
IC ANION		30 g	30.14	
NO2/NO3		30 g	30,02	
PEST MS		30 g	30.22	
PEST MSD		30 g	30.25	
PCB MS		30 g	30,09	
PCB MSD	<del></del>	30 g	30.09	1-1
				<del></del>
	<del>-  </del>		<del> </del>	<del></del>
	<del>-  </del>			
Comments:				
		[		
Name (print): Ashley W		Signature:	Meyesails	,
Sub-Sampled Date: 4/1	0/06			•

Project ID WCH	· 	Project # 336761.	AO.ZZ	
Site # 100-H RIPARIA	N#9	Sample # J11JK4		
Tray# 2 E	53	Tare Wt. 140	gm.	
Total Dry Wt. 4560.	∫gm.	Net Dry Wt. 3	olcoil gm.	
ALL SAMPLES COLLECTI	ED BELOW CONSIST OF	F 50 SAMPLE INCREMI	ENTS	
Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	1356	400 g	700.3	Their
RAD STR		30 g	30.1	1 7
ICP MET		30 g	30.0	<del>                                     </del>
HEX CR		30 g	30.4	<del>-  </del>
SEMI VOA		30 g	30.3	
PEST		30 g	30.2	
PCB		30 g	30.0	
IC ANION		30 g	,20.1	
NO2/NO3		30 g	30.0	
IC ANION MS		<b>30</b> g	30.3	
IC ANION MSD		30 g	30.1	
NO2/NO3 MS		30 g	30.5	
NO2/NO3 MSD		30 g	30.3	
	-			
Comments:				
Name (print): Kelly	Enson	Signature:	14. Enox	

Sub-Sampled Date:

Project ID	WCH	_	Project # 336761.A	.O.ZZ	
Site #	100-H RIPARIAN # 9	_	Sample # J11JK5		
Tray#	40	_	Tare Wt. 14	<u> </u>	
Total Dry	Wt. 4954.7	_gm.	Net Dry Wt. 34	94.7 gm.	
ALL SAME	PLES COLLECTED BE	LOW CONSIST OF	50 SAMPLE INCREME	NTS	
	Analyte	Sample Time	Grams Needed	Grams Collected	initials
IOF A	-	T 1/1	400	1 10 5 9 5	IZM
GEA RAD STR	<u></u>	14:00	400 g	405.95	12.11
ICP MET	·	<del>                                     </del>	30 g 30 g	30:90	<del> </del>
HEX CR		<del>  </del>	30 g	\$0.09	<del>                                     </del>
SEMI VOA	\		30 g	30.10	<del>                                     </del>
PEST			30 g	30.46	<del>                                     </del>
PCB			30 g	30.90	
IC ANION			30 g	31.23	
NO2/NO3			30 g	30 41	
ICP MET N			30 g	30.80	
ICP MET N			30 g	30.39	
HEX CR M			30 g	30.05	
HEX CR M	SD	<u> </u>	30 g	30.56	<del></del>
ļ—			<u> </u>		
ļ					<del></del>
<del></del>					<del> </del>
				<del> </del>	<del></del>
					<del>   </del>
<del>                                     </del>	<del></del>	1		†	
Comments	<b>5</b> :				
Name (pri	nt): Kazic Ma	rey	Signature: Kuck	Marke	
	led Date: <u>04/10/</u>			10	

## Lionville Laboratory Incorporated SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT:

Date:

Purchase Order / Project# / SAF# / SOW# / Release #:

LvLI Batch #:

Sample Custodian:

	NOTE: EXPLA	AIN ALL DISC	REPANCIES		
1.	Samples Hand Delivered or Shipped	Carrier -	D Ec	Airbill# 65	95-0631357
2.	Custody seals on coolers or shipping container intact, signed and dated?	D)XS	□ No	□ No Seals	Comments
3.	Outside of coolers or shipping containers are free from damage?	пуs	Ci No		
4.	All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?	ZYes Z	[] No		
5.	Samples received cooled or ambient?	Temp /7-4	°C	Cooler#	
6.	Custody seals on sample containers intact, signed and dated?	D Yes	□ No	□ No Scals	
7.	coc signed and dated?	12 Yes	□ No		
8.	Sample containers are intact?	Yes De	□ No		
9.	All samples on coc received? All samples received on coc?	15	12/No #005 / Rec 89	M for Avilly owle Eded for 190 mat & or	NOT REC'S 18005 FOR STEADITICA CORDING TO LABOL
10.	All sample label information matches coc?	Ø Yes	□ No		
11.	Samples properly preserved?	C Yes	□ No		
12.	Samples received within hold times? Short holds taken to wet lab?	D Yes	□ N <sub>0</sub>		
13.	VOA, TOC, TOX free of headspace?	□ Yes	□ No	CHYA	
14.	QC stickers placed on bottles designated by client?	DX:s	□ No	□ N/A	
15.	Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy)	DYes	□ No	منابع. منابع	
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	Die	□ No	pa uriado  Bi No  Discrepancies	·





CLIENT ID /ANALYSIS	LVL #	мтx — —	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J11 <b>J</b> K1						
SILVER, TOTAL	001	s	06L0257	04/10/06	04/27/06	04/28/06
SILVER, TOTAL	001 REP	S	06L0257	04/10/06	04/27/06	04/28/06
SILVER, TOTAL	001 MS	s	06L0257	04/10/06	04/27/06	04/28/06
ALUMINUM, TOTAL	001	S	06L0257	04/10/06	04/27/06	04/28/06
ALUMINUM, TOTAL	001 REP	S	06L0257	04/10/06	04/27/06	04/28/06
ALUMINUM, TOTAL	001 MS	S	06L0257	04/10/06	04/27/06	04/28/06
ARSENIC, TOTAL	001	S	06L0257	04/10/06	04/27/06	04/28/06
ARSENIC, TOTAL	001 REP	S	06L0257	04/10/06	04/27/06	04/28/06
ARSENIC, TOTAL	001 MS	s	06L0257	04/10/06	04/27/06	04/28/06
BORON, TOTAL	001	s	06L0257	04/10/06	04/27/06	04/28/06
BORON, TOTAL	001 REP	s	06L0257	04/10/06	04/27/06	04/28/06
BORON, TOTAL	001 MS.	S	06L0257	04/10/06	04/27/06	04/28/06
BARIUM, TOTAL	001	s	06L0257	04/10/06	04/27/06	04/28/06
BARIUM, TOTAL	001 REP	S	06L0257	04/10/06	04/27/06	04/28/06
BARIUM, TOTAL	001 MS	S	06L0257	04/10/06	04/27/06	04/28/06
BERYLLIUM, TOTAL	001	S	06L0257	04/10/06	04/27/06	04/28/06
BERYLLIUM, TOTAL	001 REP	s	06L0257	04/10/06	04/27/06	04/28/06
BERYLLIUM, TOTAL	001 MS	S	06L0257	04/10/06	04/27/06	04/28/06
BISMUTH, TOTAL	001	S	06L0257	04/10/06	04/27/06	04/28/06
BISMUTH, TOTAL REP	001 REP	S	06L0257	04/10/06	04/27/06	04/28/06
BISMUTH, TOTAL SPIKE	001 MS	S	06L0257	04/10/06	04/27/06	04/28/06
CALCIUM, TOTAL	001	S	06L0257	04/10/06	04/27/06	04/28/06
CALCIUM, TOTAL	001 REP	S	06L0257	04/10/06	04/27/06	04/28/06
CALCIUM, TOTAL	001 MS	S	06L0257	04/10/06	04/27/06	04/28/06
CADMIUM, TOTAL	001	S	06L0257	04/10/06	04/27/06	04/28/06
CADMIUM, TOTAL	001 REP	S	06L0257	04/10/06	04/27/06	04/28/06
CADMIUM, TOTAL	001 MS	S	06L0257	04/10/06	04/27/06	04/28/06
COBALT, TOTAL	001	S	06L0257	04/10/06	04/27/06	04/28/06
COBALT, TOTAL	001 REP	S	06L0257	04/10/06	04/27/06	04/28/06
COBALT, TOTAL	001 MS	Ş	06L0257	04/10/06	04/27/06	04/28/06
CHROMIUM, TOTAL	001	S	06L0257	04/10/06	04/27/06	04/28/06
CHROMIUM, TOTAL	001 REP	S	06L0257	04/10/06	04/27/06	04/28/06
CHROMIUM, TOTAL	001 MS	s	06L0257	04/10/06	04/27/06	04/28/06
COPPER, TOTAL	001		06L0257	04/10/06	04/27/06	04/28/06
COPPER, TOTAL	001 REP	s	06L0257	04/10/06	04/27/06	04/28/06

DATE RECEIVED: 04/12/06

LVL LOT # :0604L752

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
COPPER, TOTAL	001 MS	s	06L0257	04/10/06	04/27/06	04/28/06
IRON, TOTAL	001	s	06L0257	04/10/06	04/27/06	04/28/06
IRON, TOTAL	001 REP	s	06L0257	04/10/06	04/27/06	04/28/06
IRON, TOTAL	001 MS	Š	06L0257	04/10/06	04/27/06	04/28/06
POTASSIUM, TOTAL	001	s	06L0257	04/10/06	04/27/06	04/28/06
POTASSIUM, TOTAL	001 REP	S	06L0257	04/10/06	04/27/06	04/28/06
POTASSIUM, TOTAL	001 MS	Š	06L0257	04/10/06	04/27/06	04/28/06
LITHIUM, TOTAL	001	S	06L0257	04/10/06	04/27/06	04/28/06
LITHIUM, TOTAL	001 REP	Š	06L0257	04/10/06	04/27/06	04/28/06
LITHIUM, TOTAL	001 MS	s	06L0257	04/10/06	04/27/06	04/28/06
MAGNESIUM, TOTAL	001	s	06L0257	04/10/06	04/27/06	04/28/06
MAGNESIUM, TOTAL	001-REP	s	06L0257	04/10/06	04/27/06	04/28/06
MAGNESIUM, TOTAL	001 MS	S	06L0257	04/10/06	04/27/06	04/28/06
MANGANESE, TOTAL	001	s	06L0257	04/10/06	04/27/06	04/28/06
MANGANESE, TOTAL	001 REP	s	06L0257	04/10/06	04/27/06	04/28/06
MANGANESE, TOTAL	001 MS	s	06L0257	04/10/06	04/27/06	04/28/06
MOLYBDENUM, TOTAL	001	S	06L0257	04/10/06	04/27/06	04/28/06
MOLYBDENUM, TOTAL	001 REP	S	06L0257	04/10/06	04/27/06	04/28/06
MOLYBDENUM, TOTAL	001 MS	S	06L0257	04/10/06	04/27/06	04/28/06
SODIUM, TOTAL	001	s	06L0257	04/10/06	04/27/06	04/28/06
SODIUM, TOTAL	001 REP	s	06L0257	04/10/06	04/27/06	04/28/06
SODIUM, TOTAL	001 MS	S	06L0257	04/10/06	04/27/06	04/28/06
NICKEL, TOTAL	001	S	06L0257	04/10/06	04/27/06	04/28/06
NICKEL, TOTAL	001 REP	S	06L0257	04/10/06	04/27/06	04/28/06
NICKEL, TOTAL	001 MS	S	06L0257	04/10/06	04/27/06	04/28/06
PHOSPHORUS, TOTAL	001	S	06L0257	04/10/06	04/27/06	04/28/06
PHOSPHORUS, TOTAL	001 REP	S	06L0257	04/10/06	04/27/06	04/28/06
PHOSPHORUS, TOTAL	001 MS	S	06L0257	04/10/06	04/27/06	04/28/06
LEAD, TOTAL	001	S	06L0257	04/10/06	04/27/06	04/28/06
LEAD, TOTAL	001 REP	S	06L0257	04/10/06	04/27/06	04/28/06
LEAD, TOTAL	001 MS	S	06L0257	04/10/06	04/27/06	04/28/06
ANTIMONY, TOTAL	001	S	06L0257	04/10/06	04/27/06	04/28/06
ANTIMONY, TOTAL	001 REP	S	06L0257	04/10/06	04/27/06	04/28/06
ANTIMONY, TOTAL	001 MS	S	06L0257	04/10/06	04/27/06	04/28/06
SELENIUM, TOTAL	001	S	06L0257	04/10/06	04/27/06	04/28/06
SELENIUM, TOTAL	001 REP	S	06L0257	04/10/06	04/27/06	04/28/06
SELENIUM, TOTAL	001 MS	S	06L0257	04/10/06	04/27/06	04/28/06
SILICON, TOTAL	001	S	06L0257	04/10/06	04/27/06	04/28/06

DATE RECEIVED: 04/12/06

LVL LOT # :0604L752

CLIENT ID /ANALYSIS	LVL	#	XTM	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
					04/20/06	. 04/05/06	04/20/06
SILICON, TOTAL		REP	S	06L0257	04/10/06	04/27/06	04/28/06
SILICON, TOTAL	001	MS	S	06L0257	04/10/06	04/27/06	04/28/06
TIN, TOTAL	001		S	06L0257	04/10/06	04/27/06	04/28/06
TIN, TOTAL		REP	s	06L0257	04/10/06	04/27/06	04/28/06
TIN, TOTAL	001	MS	S	06L0257	04/10/06	04/27/06	04/28/06
STRONTIUM, TOTAL	001		S	06L0257	04/10/06	04/27/06	04/28/06
STRONTIUM, TOTAL		REP	S	06L0257	04/10/06	04/27/06	04/28/06
STRONTIUM, TOTAL	001	MS	S	06L0257	04/10/06	04/27/06	04/28/06
THALLIUM, TOTAL	001		S	06L0257	04/10/06	04/27/06	04/28/06
THALLIUM, TOTAL		REP	S	06L0257	04/10/06	04/27/06	04/28/06
THALLIUM, TOTAL	001	MS	S	06L0257	04/10/06	04/27/06	04/28/06
URANIUM, TOTAL	001		S	06L0257	04/10/06	04/27/06	04/28/06
URANIUM, TOTAL		REP	s	06L0257	04/10/06	04/27/06	04/28/06
URANIUM, TOTAL	001	MS	S	06L0257	04/10/06	04/27/06	04/28/06
VANADIUM, TOTAL	001		S	06L0257	04/10/06	04/27/06	04/28/06
VANADIUM, TOTAL		REP	S	06L0257	04/10/06	04/27/06	04/28/06
VANADIUM, TOTAL	001	MS	S	06L0257	04/10/06	04/27/06	04/28/06
ZINC, TOTAL	001		S	06L0257	04/10/06	04/27/06	04/28/06
ZINC, TOTAL		REP	S	06L0257	04/10/06	04/27/06	04/28/06
ZINC, TOTAL	001	MS	S	06L0257	04/10/06	04/27/06	04/28/06
J11JK2							
SILVER, TOTAL	002		s	06L0257	04/10/06	04/27/06	04/28/06
ALUMINUM, TOTAL	002		S	06L0257	04/10/06	04/27/06	04/28/06
ARSENIC, TOTAL	002		S	06L0257	04/10/06	04/27/06	04/28/06
BORON, TOTAL	002		S	06L0257	04/10/06	04/27/06	04/28/06
BARIUM, TOTAL	002		S	06L0257	04/10/06	04/27/06	04/28/06
BERYLLIUM, TOTAL	002		S	06L0257	04/10/06	04/27/06	04/28/06
BISMUTH, TOTAL	002		S	06L0257	04/10/06	04/27/06	04/28/06
CALCIUM, TOTAL	002		. <b>S</b>	06L0257	04/10/06	04/27/06	04/28/06
CADMIUM, TOTAL	002		S	06L0257	04/10/06	04/27/06	04/28/06
COBALT, TOTAL	002		S	06L0257	04/10/06	04/27/06	04/28/06
CHROMIUM, TOTAL	002		S	06L0257	04/10/06	04/27/06	04/28/06
COPPER, TOTAL	002		S	06L0257	04/10/06	04/27/06	04/28/06
IRON, TOTAL	002		s	06L0257	04/10/06	04/27/06	04/28/06
POTASSIUM, TOTAL	002		S	06L0257	04/10/06	04/27/06	04/28/06
LITHIUM, TOTAL	002		S	06L0257	04/10/06	04/27/06	04/28/06

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MAGNESIUM, TOTAL	002	s	06L0257	04/10/06	04/27/06	04/28/06
MANGANESE, TOTAL	002	S	06L0257	04/10/06	04/27/06	04/28/06
MOLYBDENUM, TOTAL	002	s	06L0257	04/10/06	04/27/06	04/28/06
SODIUM, TOTAL	002	S	06L0257	04/10/06	04/27/06	04/28/06
NICKEL, TOTAL	002	S	06L0257	04/10/06	04/27/06	04/28/06
PHOSPHORUS, TOTAL	002	s	06L0257	04/10/06	04/27/06	04/28/06
LEAD, TOTAL	002	S	06L0257	04/10/06	04/27/06	04/28/06
ANTIMONY, TOTAL	002	S	06L0257	04/10/06	04/27/06	04/28/06
SELENIUM, TOTAL	002	S	06L0257	04/10/06	04/27/06	04/28/06
SILICON, TOTAL	002	S	06L0257	04/10/06	04/27/06	04/28/06
TIN, TOTAL	002	S	06L0257	04/10/06	04/27/06	04/28/06
STRONTIUM, TOTAL	002	S	06L0257	04/10/06	04/27/06	04/28/06
THALLIUM, TOTAL	002	S	06L0257	04/10/06	04/27/06	04/28/06
URANIUM, TOTAL	002	s	06L0257	04/10/06	04/27/06	04/28/06
VANADIUM, TOTAL	002	S	06L0257	04/10/06	04/27/06	04/28/06
ZINC, TOTAL	002	S	06L0257	04/10/06	04/27/06	04/28/06
J11JK3			•			
SILVER, TOTAL	003	s	06L0257	04/10/06	04/27/06	04/28/06
ALUMINUM, TOTAL	003	S	06L0257	04/10/06	04/27/06	04/28/06
ARSENIC, TOTAL	003	S	06L0257	04/10/06	04/27/06	04/28/06
BORON, TOTAL	003	Ş	06L0257	04/10/06	04/27/06	04/28/06
BARIUM, TOTAL	003	S	06L0257	04/10/06	04/27/06	04/28/06
BERYLLIUM, TOTAL	003	S	06L0257	04/10/06	04/27/06	04/28/06
BISMUTH, TOTAL	003	S	06L0257	04/10/06	04/27/06	04/28/06
CALCIUM, TOTAL	003	S	06L0257	04/10/06	04/27/06	04/28/06
CADMIUM, TOTAL	003	S	06L0257	04/10/06	04/27/06	04/28/06
COBALT, TOTAL	003	S	06L0257	04/10/06	04/27/06	04/28/06
CHROMIUM, TOTAL	003	S	06L0257	04/10/06	04/27/06	04/28/06
COPPER, TOTAL	003	S	06L0257	04/10/06	04/27/06	04/28/06
IRON, TOTAL	003	S	06L0257	04/10/06	04/27/06	04/28/06
POTASSIUM, TOTAL	003	S	06L0257	04/10/06	04/27/06	04/28/06
LITHIUM, TOTAL	003	S	06L0257	04/10/06	04/27/06	04/28/06
MAGNESIUM, TOTAL	003	S	06L0257	04/10/06	04/27/06	04/28/06
MANGANESE, TOTAL	003	S	06L0257	04/10/06	04/27/06	04/28/06
MOLYBDENUM, TOTAL	003	S	06L0257	04/10/06	04/27/06	04/28/06
SODIUM, TOTAL	003	S	06L0257	04/10/06	04/27/06	04/28/06

CLIENT ID /ANALYSIS	LVL #	мтх	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NICKEL, TOTAL	003	s	06L0257	04/10/06	04/27/06	04/28/06
PHOSPHORUS, TOTAL	003	S	06L0257	04/10/06	04/27/06	04/28/06
LEAD, TOTAL	003	S	06L0257	04/10/06	04/27/06	04/28/06
ANTIMONY, TOTAL	003	S	06L0257	04/10/06	04/27/06	04/28/06
SELENIUM, TOTAL	003	S	06L0257	04/10/06	04/27/06	04/28/06
SILICON, TOTAL	003	S	06L0257	04/10/06	04/27/06	04/28/06
TIN, TOTAL	003	S	06L0257	04/10/06	04/27/06	04/28/06
STRONTIUM, TOTAL	003	S	06L0257	04/10/06	04/27/06	04/28/06
THALLIUM, TOTAL	003	S	06L0257	04/10/06	04/27/06	04/28/06
URANIUM, TOTAL	003	S	06L0257	04/10/06	04/27/06	04/28/06
VANADIUM, TOTAL	003	\$	06L0257	04/10/06	04/27/06	04/28/06
ZINC, TOTAL	003	S	06L0257	04/10/06	04/27/06	04/28/06
ZINC, IOTAL	003	5	0000237	04/10/00	04/2//00	04/20/00
J11JK4						
SILVER, TOTAL	004	S	06L0257	04/10/06	04/27/06	04/28/06
ALUMINUM, TOTAL	004	S	06L0257	04/10/06	04/27/06	04/28/06
ARSENIC, TOTAL	004	S	06L0257	04/10/06	04/27/06	04/28/06
BORON, TOTAL	004	s	06L0257	04/10/06	04/27/06	04/28/06
BARIUM, TOTAL	004	S	06L0257	04/10/06	04/27/06	04/28/06
BERYLLIUM, TOTAL	004	S	06L0257	04/10/06	04/27/06	04/28/06
BISMUTH, TOTAL	004	S	06L0257	04/10/06	04/27/06	04/28/06
CALCIUM, TOTAL	004	s	06L0257	04/10/06	04/27/06	04/28/06
CADMIUM, TOTAL	004	s	06L0257	04/10/06	04/27/06	04/28/06
COBALT, TOTAL	004	S	06L0257	04/10/06	04/27/06	04/28/06
CHROMIUM, TOTAL	004	s	06L0257	04/10/06	04/27/06	04/28/06
COPPER, TOTAL	004	S	06L0257	04/10/06	04/27/06	04/28/06
IRON, TOTAL	004	S	06L0257	04/10/06	04/27/06	04/28/06
POTASSIUM, TOTAL	004	5	06L0257	04/10/06	04/27/06	04/28/06
LITHIUM, TOTAL	004	Ş	06L0257	04/10/06	04/27/06	04/28/06
MAGNESIUM, TOTAL	004	S	06L0257	04/10/06	04/27/06	04/28/06
MANGANESE, TOTAL	004	S	06L0257	04/10/06	04/27/06	04/28/06
MOLYBDENUM, TOTAL	004	s	06L0257	04/10/06	04/27/06	04/28/06
SODIUM, TOTAL	004	S	06L0257	04/10/06	04/27/06	04/28/06
NICKEL, TOTAL	004	S	06L0257	04/10/06	04/27/06	04/28/06
PHOSPHORUS, TOTAL	004	S	06L0257	04/10/06	04/27/06	04/28/06
LEAD, TOTAL	004	. S	06L0257	04/10/06	04/27/06	04/28/06
ANTIMONY, TOTAL	004	S	06L0257	04/10/06	04/27/06	04/28/06

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
	<u>.                                    </u>		•			
SELENIUM, TOTAL	004	S	06L0257	04/10/06	04/27/06	04/28/06
SILICON, TOTAL	004	S	06L0257	04/10/06	04/27/06	04/28/06
TIN, TOTAL	004	S	06L0257	04/10/06	04/27/06	04/28/06
STRONTIUM, TOTAL	004	S	06L0257	04/10/06	04/27/06	04/28/06
THALLIUM, TOTAL	004	s	06L0257	04/10/06	04/27/06	04/28/06
URANIUM, TOTAL	004	s	06L0257	04/10/06	04/27/06	04/28/06
VANADIUM, TOTAL	004	s	06L0257	04/10/06	04/27/06	04/28/06
ZINC, TOTAL	004	S	06L0257	04/10/06	04/27/06	04/28/06
J11JK5				,		
SILVER, TOTAL	005	s	06L0257	04/10/06	04/27/06	04/28/06
ALUMINUM, TOTAL	005	S	06L0257	04/10/06	04/27/06	04/28/06
ARSENIC, TOTAL	005	S	06L0257	04/10/06	04/27/06	04/28/06
BORON, TOTAL	005	S	06L0257	04/10/06	04/27/06	04/28/06
BARIUM, TOTAL	005	S	06L0257	04/10/06	04/27/06	04/28/06
BERYLLIUM, TOTAL	005	S.	06L0257	04/10/06	04/27/06	04/28/06
BISMUTH, TOTAL	005	S	06L0257	04/10/06	04/27/06	04/28/06
. CALCIUM, TOTAL	005	s	06L0257	04/10/06	04/27/06	04/28/06
CADMIUM, TOTAL	005	S	06L0257	04/10/06	04/27/06	04/28/06
COBALT, TOTAL	005	S	06L0257	04/10/06	04/27/06	04/28/06
CHROMIUM, TOTAL	005	s	06L0257	04/10/06	04/27/06	04/28/06
COPPER, TOTAL	005	s	06L0257	04/10/06	04/27/06	04/28/06
IRON, TOTAL	005	S	06L0257	04/10/06	04/27/06	04/28/06
POTASSIUM, TOTAL	005	S	06L0257	04/10/06	04/27/06	04/28/06
LITHIUM, TOTAL	005	S	06L0257	04/10/06	04/27/06	04/28/06
MAGNESIUM, TOTAL	005	S	06L0257	04/10/06	04/27/06	04/28/06
MANGANESE, TOTAL	005	S	06L0257	04/10/06	04/27/06	04/28/06
MOLYBDENUM, TOTAL	005	S	06L0257	04/10/06	04/27/06	04/28/06
SODIUM, TOTAL	005	S	06L0257	04/10/06	04/27/06	04/28/06
NICKEL, TOTAL	005	S	06L0257	04/10/06	04/27/06	04/28/06
PHOSPHORUS, TOTAL	005	S	06L0257	04/10/06	04/27/06	04/28/06
LEAD, TOTAL	005	S	06L0257	04/10/06	04/27/06	04/28/06
ANTIMONY, TOTAL	005	S	06L0257	04/10/06	04/27/06	04/28/06
SELENIUM, TOTAL	005	s	06L0257	04/10/06	04/27/06	04/28/06
SILICON, TOTAL	005	S	06L0257	04/10/06	04/27/06	04/28/06
TIN, TOTAL	005	S	06L0257	04/10/06	04/27/06	04/28/06
STRONTIUM, TOTAL	005	S	06L0257	04/10/06	04/27/06	04/28/06

DATE RECEIVED: 04/12/06

LVL LOT # :0604L752

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
	<del>,</del>				<del></del>	<del></del>
THALLIUM, TOTAL	005	s	06L0257	04/10/06	04/27/06	04/28/06
URANIUM, TOTAL	005	S	06L0257	04/10/06	04/27/06	04/28/06
VANADIUM, TOTAL	005	S	06L0257	04/10/06	04/27/06	04/28/06
ZINC, TOTAL	005	S	06L0257	04/10/06	04/27/06	04/28/06

LAB QC:

SILVER LABORATORY	LC1	BS	S	06L0257	N/A	04/27/06	04/28/06
SILVER, TOTAL	MB1		S	06L0257	N/A	04/27/06	04/28/06
ALUMINUM LABORTORY	LC1	BS	S	06L0257	N/A	04/27/06	04/28/06
ALUMINUM, TOTAL	MB1		S	06L0257	N/A	04/27/06	04/28/06
ARSENIC LABORATORY	LC1	BS	s	06L0257	N/A	04/27/06	04/28/06
ARSENIC, TOTAL	MB1		S	06L0257	N/A	04/27/06	04/28/06
BORON LABORATORY	LC1	BS	S	06L0257	N/A	04/27/06	04/28/06
BORON, TOTAL	MB1		S	06L0257	N/A	04/27/06	04/28/06
BARIUM LABORATORY	LC1	BS	S	06L0257	N/A	04/27/06	04/28/06
BARIUM, TOTAL	MB1		S	06L0257	N/A	04/27/06	04/28/06
BERYLLIUM LABORATORY	LC1	BS	S	06L0257	N/A	04/27/06	04/28/06
BERYLLIUM, TOTAL	MB1		S	06L0257	N/A	04/27/06	04/28/06
BISMUTH, LCS	LC1	BS	S	06L0257	N/A	04/27/06	04/28/06
BISMUTH, TOTAL	MB1		S	06L0257	N/A	04/27/06	04/28/06
CALCIUM LABORATORY	LC1	BS	S	06L0257	N/A	04/27/06	04/28/06
CALCIUM, TOTAL	MB1		S	06L0257	N/A	04/27/06	04/28/06
CADMIUM LABORATORY	LC1	BS	S	06L0257	N/A	04/27/06	04/28/06
CADMIUM, TOTAL	MB1		S	06L0257	N/A	04/27/06	04/28/06
COBALT LABORATORY	LC1	BS	S	06L0257	N/A	04/27/06	04/28/06
COBALT, TOTAL	MB1		S	06L0257	N/A	04/27/06	04/28/06
CHROMIUM LABORATORY	LC1	BS	S	06L0257	N/A	04/27/06	04/28/06
CHROMIUM, TOTAL	MB1		S	06L0257	N/A	04/27/06	04/28/06
COPPER LABORATORY	LC1	BS	S	06L0257	N/A	04/27/06	04/28/06
COPPER, TOTAL	MB1		S	06L0257	N/A	04/27/06	04/28/06
IRON LABORATORY	LCl	BS	S	06L0257	N/A	04/27/06	04/28/06
IRON, TOTAL	MB1		S	06L0257	N/A	04/27/06	04/28/06
POTASSIUM LABORATORY	LC1	BS	s	06L0257	N/A	04/27/06	04/28/06
POTASSIUM, TOTAL	MBl		S	06L0257	N/A	04/27/06	04/28/06
LITHIUM LABORATORY	LC1	BS	S	06L0257	N/A	04/27/06	04/28/06
LITHIUM, TOTAL	MB1		S	06L0257	N/A	04/27/06	04/28/06
MAGNESIUM LABORATORY	LC1	BS	S	06L0257	N/A	04/27/06	04/28/06

CLIENT ID /ANALYSIS	LVL	#	мтх — —	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MAGNESIUM, TOTAL	MB1		s	06L0257	N/A	04/27/06	04/28/06
MANGANESE LABORATORY	LC1	BS	S	06L0257	N/A	04/27/06	04/28/06
MANGANESE, TOTAL	MB1		S	06L0257	N/A	04/27/06	04/28/06
MOLYBDENUM LABORATOR	LC1	BS	s	06L0257	N/A	04/27/06	04/28/06
MOLYBDENUM, TOTAL	MB1		S	06L0257	N/A	04/27/06	04/28/06
SODIUM LABORATORY	LÇ1	BS	s	<b>06L0257</b>	N/A	04/27/06	04/28/06
SODIUM, TOTAL	MB1		S	06L0257	N/A	04/27/06	04/28/06
NICKEL LABORATORY	LC1	BS	S	06L0257	N/A	04/27/06	04/28/06
NICKEL, TOTAL	MB1		S	06L0257	N/A	04/27/06	04/28/06
PHOSPHORUS LCS	LC1	BS	s	06L0257	N/A	04/27/06	04/28/06
PHOSPHORUS, TOTAL	MBl		s	06L0257	N/A	04/27/06	04/28/06
LEAD LABORATORY	LC1	BS	S	06L0257	N/A	04/27/06	04/28/06
LEAD, TOTAL	MB1		S	06L0257	N/A	04/27/06	04/28/06
ANTIMONY LABORATORY	LC1	BS	S	06L0257	N/A	04/27/06	04/28/06
ANTIMONY, TOTAL	MB1		S	06L0257	N/A	04/27/06	04/28/06
SELENIUM LABORATORY	LC1	BS	S	06L0257	N/A	04/27/06	04/28/06
SELENIUM, TOTAL	MB1		S	06L0257	N/A	04/27/06	04/28/06
SILICON LABORATORY	LC1	BS	S	06L0257	N/A	04/27/06	04/28/06
SILICON, TOTAL	MB1		S	06L0257	N/A	04/27/06	04/28/06
TIN LABORATORY	LC1	BS	S	06L0257	N/A	04/27/06	04/28/06
TIN, TOTAL	MB1		S	06L0257	N/A	04/27/06	04/28/06
STRONTIUM LCS STANDA	LC1	BS	S	06L0257	N/A	04/27/06	04/28/06
STRONTIUM, TOTAL	MB1		S	06L0257	N/A	04/27/06	04/28/06
THALLIUM LABORATORY	LC1	BS	S	06L0257	N/A	04/27/06	04/28/06
THALLIUM, TOTAL	MB1		S	06L0257	N/A	04/27/06	04/28/06
URANIUM LABORATORY	LC1	BS	S	06L0257	N/A	04/27/06	04/28/06
URANIUM, TOTAL	MBl		S	06L0257	N/A	04/27/06	04/28/06
VANADIUM LABORATORY	LC1	BS	S	06L0257	N/A	04/27/06	04/28/06
VANADIUM, TOŢAL	MB1		S	06L0257	N/A	04/27/06	04/28/06
ZINC LABORATORY	LC1	BS	S	06L0257	N/A	04/27/06	04/28/06
ZINC, TOTAL	MB1		s	06L0257	N/A	04/27/06	04/28/06



#### **Analytical Report**

Client: TNU-HANFORD RC-051

LVL#: 0604L752

SDG/SAF#: K0302/RC-051

W.O.#: 11343-606-001-9999-00

Date Received: 04-12-06

#### METALS CASE NARRATIVE

The following is a summary of the QC results accompanying the sample results. Lionville Laboratory (LvLI) certifies that all test results meet the requirements of NELAC except as noted below.

All soil samples are reported on a dry weight basis unless requested by the client, required by the method, or noted otherwise.

- 1. This narrative covers the analyses of 5 soil samples.
- 2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary. The samples were digested in 2 gram increments in multiple beakers until all of the metals sample aliquot was digested. The resulting digestates were composited to represent each sample for analysis, and a portion of the final digestate volume was filtered for analysis. All samples, except for sample J11JR9, were reported with 3-fold dilutions due to high concentrations and sample matrix. The sample results are reported on a wet weight, 'as received' basis.

The samples were rerun for Beryllium and Phosphorous due to sample matrix.

- 3. All analyses were performed within the required holding times.
- 4. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits.
- 5. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).
- 6. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL), or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.
- 7. All ICP Interference Check Standards were within control limits.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 29 pages.

- 8. All laboratory control samples (LCS) were within the 80-120% control limits with the exception of Silicon at 50.5%. Refer to the Inorganics Laboratory Control Standards Report. Associated sample results may be biased low.
- 9. The matrix spike (MS) recoveries for 5 analytes were outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.
- 10. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A PDS was prepared at meaningful concentration level for the following analytes:

		<u>PDS</u>	<u>PDS</u>
Sample ID	<u>Element</u>	Concentration (ppb)	% Recovery
J11JK1	Aluminum	66,000	94.8
	Iron	66,000	104.3
	Manganese	6,000	100.4
	Antimony	300	97.6
	Silicon	6,300	98.9

- 11. The duplicate analysis for 1 analyte was outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.
- 12. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.
- 13. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
- 14. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels

Laboratory Manager

Lionville Laboratory Incorporated

jjw/m04-752

Date

### METALS METHOD GLOSSARY

The following m Lot#: 0604L7		reference for the diges	tion and analysi	s of sample	s contained within 1
Leaching Proced	lure:13101311	1312Other:			
CLP Metals I	Digestion and Ana	lysis Methods:ILN	103.0ILM04	i.o	
Metals Digestion	Methods:3005A	3010A3015	3020A <u>⊁</u> 3050F	3051 _	_200.7SS17
		Metals Analysis M	<b>Iethods</b>		
			•	EPA	
	SW846	EPA	STD MTD	OSWR	USATHAMA
Aluminum	<b>∠6010B</b>	200.7			<u>_99</u>
Antimony	<u></u> <u>←</u> 6010B7041				99
Arsenic	<b>≥6010B</b> _7060		3113B		<u>_99</u>
Barium	<u>∕</u> 26010B	200.7			99
Beryllium	<b>2</b> 6010B	200.7			99
Bismuth	<b>≯</b> 6010B¹	200.7 ¹		1620	99
Boron	<b>№</b> 6010B	200.7			99
Cadmium	<u>€</u> 6010B7131				99
Calcium	<u>≁</u> 6010B	200.7			99
Chromium	£6010B7191		•		SS17
Cobalt	<u>≁</u> 6010B	200.7			<u>99</u>
Copper	<u>⊁</u> 6010B7211				99
lron	<b>∑</b> 6010B	200.7	2112D	-	99
Lead	<b>№</b> 6010B7421 <b>№</b> 6010B7430	<del></del> ,	3113B	1/06	99
Lithium	₩6010B/430	200.7		1620	99
Magnesium	<u>~</u> 6010B	200.7			99
Manganese	<del></del>	<u> </u>			99
Mercury	7470A 37471. <b>2</b> 6010B	A '245.1 '245.5 ' 200.7			99
Molybdenum Nickel	~6010B ~6010B	200.7 200.7			99
Potassium	<b>₹</b> 6010B7610	_			99
Rare Earths	6010B - 7010	200.7		1.620	99
Selenium	7 6010B 7740		21120	1620	99
Silicon	76010B - 7740	200.7	3113B	1600	99
Silica	6010B	200.7		1620	99
Silver	—6010B 7761 <sup>4</sup>			1620	99
Sodium	6010B	<del></del>			99
	₹6010B _///0	200.7273.1 <sup>4</sup> 200.7			99
Strontium	<del></del>	<del>_</del>	200 0		99
Thallium			200.9		99
Tin	<b>26010B</b>	200.7			99
Titanium	6010B	200.7			99
Uranium	≥ 6010B ¹	200.7 '		1620	99
Vanadium	<b>₹6010B</b>	200.7			99
Zinc	<u>∕</u> 6010B	200.7		. e	99
Zirconium	6010B '	200.7 1		1620	99
Other: Austhorius	Meth	od: 60/0B		L-W1-0	33/M-43/01

LWI-03/M-43/01 000000011

### METHOD REFERENCES AND DATA QUALIFIERS

### **DATA QUALIFIERS**

- U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.
- \* = Indicates that the original sample result is greater than 4x the spike amount added.

#### **ABBREVIATIONS**

MB = Method or Preparation Blank.

MS = Matrix Spike.

MSD = Matrix Spike Duplicate.

REP = Sample Replicate

LCS = Laboratory Control Sample.

NC = Not calculated.

### ANALYTICAL METAL METHODS

- 1. Not included in the method element list.
- 2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, approximately 0.3 grams of sample is taken to a final volume of 50 mL (including all reagents).
- 3. Flame AA.
- 4. Graphite Furnace AA.

L-WJ-033/N-04/98

#### Lionville Laboratory, Inc.

#### INORGANICS DATA SUMMARY REPORT 05/25/06

CLIENT: TNUHAMPORD RC-051 K0302

LVL LOT #: 0604L752

WORK	ORDER:	11343-606-001-9999-00
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		

					REPORTING	DILUTION
SAMPLE	SITE ID	ANALYTE	result	UNITS	LIMIT	FACTOR
*****	C2102D27E41E46E8	********************	****		2222527977	
-001	J11JK1	Silver, Total	0.10 u	MG/KG	0.10	o. c
,		Aluminum, Total	7440	MG/KG	4.3	3.0
	•	Arsenic, Total	4.B	MG/KG	0.91	3.0
		Boron, Total	1.3	MG/KG	0.36	3.0
		Barium, Total	65.7	MG/KG	0.03	3.0
		Beryllium, Total	0.32	MG/KG	0.03	3.0
		Bismuth, Total	0.76 u	MG/KG	0.76	3.0
		Calcium, Total	4180	MG/KG	2.5	3.0
		Cadmium, Total	0.81	MG/KG	0.10	3.0
		Cobalt, Total	6.2	MG/KG	0.21	3.0
		Chromium, Total	27.4	MG/KG	0.19	3.0
		Copper, Total	23.3	MG/KG	0.18	3.0
		Iron, Total	18200	MG/KG	<b>S</b> . 2	3.0
		Potassium, Total	802	MG/KG	3.4	3.0
		Lithium, Total	8.6	MG/KG	0.04	3.0
		Magnesium, Total	4420	MG/KG	1.5	ο, ε
		Manganese, Total	257	NG/KG	D.04	3.0
		Molybdenum, Total	0.43 u	MG/KG	0.43	3.0
		Sodium, Total	217	MG/KG	1.1	3.0
		Nickel, Total	14.3	MG/KG	0.36	3.0
		Phosphorus, Total	691	MG/KG	1.3	3.0
		Lead, Total	30.2	MG/KG	0.46	3.0
		Antimony, Total	0.66 u	MG/KG	0.66	3.0
		Selenium, Total	0.70 น	MG/KG	0.70	3.0
		Silicon, Total	354	MG/KG	3.4	3.0
		Tin, Total	1.6 ч	MG/KG	1.6	3.0
		Strontium, Total	25.5	MG/KG	0.01	3.0
		Thallium, Total	1.0 u	MG/KG	1.0	3.0
		Uranium, Total	1.4	MG/KG	1.3	3.0
		Vanadium, Total	40.9	MG/KG	0.13	3.0
		Zinc, Total	197	MG/KG	0.24	3.0

#### Lionville Laboratory, Inc.

#### INORGANICS DATA SUMMARY REPORT 05/25/06

CLIENT: TNUHANFORD RC-051 K0302 WORK ORDER: 11343-606-001-9999-00 LVL LOT #: 0604L752

MG/KG

195

0.24

3.0

WORK ORD	BR: 11343-606-001-9999·	-00				
					REPORTING	DILUTION
SAMPLE	SITE ID	ANALYTE	result	UNITS	LINIT	FACTOR
		*******	******			****
-002	J11JK2	Silver, Total	0.10 u	MG/KG	0.10	3.0
		Aluminum, Total	752 D	MG/KG	4.3	3.0
		Arsenic, Total	5.3	MG/KG	0.90	3.0
		Boron, Total	1.6	MG/KG	0.35	3.0
		Barium, Total	66.6	MG/KG	0.03	3.0
		Beryllium, Total	0.32	MG/KG	0.03	3.0
		Bismuth, Total	0.75 u	MG/KG	0.75	3.0
		Calcium, Total	4120	MG/KG	2.4	3.0
		Cadmium, Total	0.83	MG/KG	0.10	3.0
		Cobalt, Total	6.3	MG/KG	0.21	3.0
		Chromium, Total	29.8	MG/KG	0.19	3.0
		Copper, Total	22.5	MG/KG	0.18	3.0
		Iron, Total	18700	MG/KG	5.2	3.0
		Potassium, Total	821	MG/KG	3.4	3,0
		Lithium, Total	9.9	MG/KG	0.04	3.0
		Magnesium, Total	4440	MG/KG	1.4	3.0
		Manganese, Total	267	MG/KG	0.04	3.0
		Molybdenum, Total	0.43 u	MG/KG	0.43	3.0
		Sodium, Total	222	MG/KG	1.1	. 3.0
		Nickel, Total	14.4	MG/KG	0.35	3.0
		Phosphorus, Total	672	MG/KG	1.3	3.0
		Lead, Total	31.8	MG/KG	0.46	3.0
		Antimony, Total	0.65 u	MG/KG	0.65	3.0
	•	selenium, Total	0.69 u	MG/KG	0.69	3.0
		Silicon, Total	336	MG/KG	3.4	3.0
		Tin, Total	1.6 u	MG/KG	1.6	3.0
		Strontium, Total	25.7	MG/KG	0.01	3.0
		Thallium, Total	1.0 u	MG/KG	1.0	3.0
		Uranium, Total	1.3 u	MG/KG	1.3	3.0
		Vanadium, Total	41.4	MG/KG	0.13	3.0

Zinc, Total

#### INORGANICS DATA SUMMARY REPORT 05/25/06

CLIENT: TNUHANFORD RC-051 K0302

LVL LOT #: 0604L752

WORK ORDER:	11343-606-001-9999-00
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					REPORTING	dilution
SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	LIMIT	FACTOR
******	*************			*****	*****	#3#06###
-003	J11JK3	Silver, Total	0.10 u	MG/KG	0.10	3.0
		Aluminum, Total	7320	MG/KG	4.3	3.0
		Arsenic, Total	5.2	MG/KG	0.92	3.0
		Boron, Total	1.5	MG/KG	0.36	3.0
		Barium, Total	64.7	MG/KG	0.03	3.0
		Beryllium, Total	0.35	MG/KG	0.03	3.0
		Bismuth, Total	0.76 u	MG/KG	0.76	3.0
		Calcium, Total	4190	MG/KG	2.5	3.0
		Cadmium, Total	0.75	MG/KG	0.10	3.0
		Cobalt, Total	6.2	MG/KG	0.21	3.0
		Chromium, Total	28.6	MG/KG	0.20	3.0
		Copper, Total	21.8	MG/KG	0.18	3.0
		Iron, Total	17900	MG/KG	5.2	3.0
	•	Potassium, Total	779	MG/KG	3.4	3.0
		Lithium, Total	8.5	MG/KG	0.04	3.0
		Magnesium, Total	4430	MG/KG	1.5	3.0
		Manganese, Total	264	MG/KG	0.04	3.0
		Molybdenum, Total	0.44 u	MG/KG	0.44	3.0
		Sodium, Total	205	MG/KG	1.1	3.0
		Nickel, Total	14.1	MG/KG	0.36	3.0
		Phosphorus, Total	667	MG/KG	1.4	3.0
		Lead, Total	31.1	MG/KG	0.46	3.0
		Antimony, Total	0.66 u	MG/KG	0.66	3.0
		Selenium, Total	0.70 u	MG/KG	0.70	3.0
		Silicon, Total	308	MG/KG	3.4	3.0
		Tin, Total	1.6 u	MG/KG	1.6	3.0
		Strontium, Total	25.3	MG/KG	0.02	3.0
		Thallium, Total	1.0 u	MG/KG	1.0	3,0
		Uranium, Total	1.3 u	MG/KG	1.3	3.0
		Vanadium, Total	40.0	MG/KG	0.14	3.0
		Zinc, Total	195	MG/KG	0.24	3.0

## INORGANICS DATA SUMMARY REPORT 05/25/06

CLIENT: TNUHANFORD RC-051 K0302

LVL LOT #: 0604L752

WORK	ORDER:	11343-606-001-9999-00
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	~~~~~	

					REPORTING	DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	LIMIT	FACTOR
****	=======================================		*******			
-004	J11JK4	Silver, Total	0.10 u	MG/KG	0.10	3.0
		Aluminum, Total	7630	MG/KG	4.3	3.0
	•	Arsenic, Total	5.1	MG/KG	0.92	3.0
		Boron, Total	1,2	MG/KG	0.36	3.0
		Sarium, Total	67.4	MG/KG	0.03	3.0
		Beryllium, Total	0.37	MG/KG	0.03	3.0
		Bismuth, Total	0.76 ⴁ	MG/KG	0.76	3.0
		Calcium, Total	4300	NG/KG	2.5	3.0
		Cadmium, Total	0.78	MG/KG	0.10	3.0
		Cobalt, Total	6.4	MG/KG	0.21	3.0
		Chromium, Total	29.5	MG/KG	0.20	3.0
		Copper, Total	24.9	MG/KG	0.18	3.0
		Iron, Total	18700	MG/KG	5.2	3.0
		Potassium, Total	825	MG/KG	3.4	3.0
		Lithium, Total	8.8	MG/KG	0.04	3.0
		Magnesium, Total	4560	MG/KG	1.5	3.0
		Manganese, Total	280	MG/KG	0.04	3.0
		Molybdenum, Total	0.44 u	MG/KG	0.44	3.0
		Sodium, Total	218	MG/KG	1.1	. 3.0
		Nickel, Total	15.0	MG/KG	0.36	3.0
		Phosphorus, Total	687	MG/KG	1.4	3.0
		Lead, Total	33.2	MG/KG	0.46	3.0
		Antimony, Total	0.66 ц	MG/KG	0.66	3.0
		Selenium, Total	0.70 u	MG/KG	0.70	3.0
		Silicon, Total	310	MG/KG	3.4	3.0
		Tin, Total	1.6 u	MG/KG	1.6	3.0
	,	Strontium, Total	26.0	MG/KG	0.02	3.0
		Thallium, Total	1.0 u	MG/KG	1.0	3.0
		Uranium, Total	1.3 u	MG/KG	1.3	3.0
		Vanadium, Total	41.7	MG/KG	0.14	3.0
		Zinc, Total	208	MG/KG	0.24	3.0

## INORGANICS DATA SUMMARY REPORT 05/25/06

CLIENT: TNUHANFORD RC-051 K0302 LVL LOT #: 0604L752

WORK ORDER: 11343-606-001-9999-00

					REPORTING	DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	LIMIT	FACTOR
	********		****	*****		
-005	J11JK5	Silver, Total	0.10 u	MG/KG	0.10	3.0
		Aluminum, Total	7540	MG/KG	4.3	3.0
		Armenic, Total	5.1	MG/KG	0.91	3.0
		Boron, Total	1.0	MG/KG	0.36	3.0
		Barium, Total	65.7	MG/KG	0.03	3.0
		Beryllium, Total	0.36	MG/KG	0.03	3.0
		Bismuth, Total	0.76 u	MG/KG	0.76	3.0
		Calcium, Total	4450	MG/KG	2.4	3.0
		Cadmium, Total	0.79	MG/KG	0.10	3.0
		Cobalt, Total	6.4	ng/kg	0.21	3.0
		Chromium, Total	28.9	MG/KG	0.19	3.0
		Copper, Total	22.3	MG/KG	0.18	3.0
		Iron, Total	18400	MG/KG	5.2	3.0
		Potassium, Total	800	MG/KG	3.4	3.0
		Lithium, Total	8.7	MG/KG	0.04	3.0
		Magnesium, Total	4560	MG/KG	1.4	3.0
		Nanganese, Total	273	MG/KG	. 0.04	3.0
		Molybdenum, Total	0.43 u	MG/KG	0.43	3.0
		Sodium, Total	220	MG/KG	1.1	3.0
		Nickel, Total	15.1	MG/KG	0.36	3.0
		Phosphorus, Total	677	MG/KG	1.3	3.0
		Lead, Total	35.6	MG/KG	0.46	3.0
		Antimony, Total	0.65 u	MG/KG	0.65	3.0
		Selenium, Total	0.70 ц	MG/KG	0.70	3.0
		Silicon, Total	338	MG/KG	3.4	3.0
		Tin, Total	,1.6 u	MG/KG	1.6	3.0
		Strontium, Total	25.4	MG/KG	0.01	3.0
		Thallium, Total	1.0 u	MG/KG	1.0	3.0
		Uranium, Total	1.3 u	MG/KG	1.3	3.0
		Vanadium, Total	41.3	MG/KG	0.13	3.0
		Zinc, Total	208	MG/KG	0.24	3.0

## INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/25/06

CLIENT: TNUHANFORD RC-051 K0302 WORK ORDER: 11343-606-001-9999-00 LVL LOT #: 0604L752

0.08 u MG/KG

0.08

					REPORTING	DILUTION
SAMPLE	SITE ID	ANALYTE	result	UNITS	LIMIT	PACTOR ·
	*********	*************		*****	****	
BLANK1	06L0257-MB1	Silver, Total	0.04 u	MG/KG	0.04	1.0
		Aluminum, Total	1.4 u	MG/KG	1.4	1.0
		Arsenic, Total	0.30 u	MG/KG	0.30	1.0
		Boron, Total	0.12 u	MG/KG	0.12	1.0
		Barium, Total	0.01	MG/KG	0.01	1.0
		Beryllium, Total	0.01 u	MG/KG	0.01	1.0
		Bismuth, Total	0.26 u	MG/KG	0.26	1.0
		Calcium, Total	2.0	MG/KG	0.82	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Cobalt, Total	. 0.07 u	MG/KG	0.07	1.0
		Chromium, Total	0.06 u	Mg/kg	0.06	1.0
		Copper. Total	0.06 u	MG/KG	0.06	1.0
		Iron, Total	1.7 u	MG/KG	1.7	1.0
		Potassium, Total	1.1 u	MG/KG	1.1	1.0
		Lithium, Total	0.02 u	MG/KG	0.02	1.0
		Magnesium, Total	0.48 u	MG/KG	0.48	1.0
	•	Manganese, Total	0.02 u	NG/KG	0.02	1.0
	•	Molybdenum, Total	0.14 u	MG/KG	0.14	1.0
	4	Sodium, Total	0.38 u	MG/KG	0.38	1.0
		Nickel, Total	0.12 u	MG/KG	0.12	1.0
		Phosphorus, Total	0.45 ນ	MG/KG	0.45	1.0
		Lead, Total	0,16 u	MG/KG	0.16	1.0
		Antimony, Total	0.22 u	MG/KG	0.22	1.0
		Selenium, Total	0.24 u	MG/KG	0.24	1.0
		Silicon, Total	1.1 u	MG/KG	1.1	1.0
	•	Tin, Total	0.54 u	MG/KG	0.54	1.0
		Strontium, Total	0.005u	MG/KG	0.005	1.0
		Thallium, Total	0.35 u	MG/KG	0.35	1.0
		Uranium, Total	0.44 u	MG/KG	0.44	1.0
		Vanadium, Total	0.04 u	MG/KG	0.04	1.0

Zinc, Total

## INORGANICS ACCURACY REPORT 05/25/06

CLIENT: TNUHANFORD RC-051 K0302

LVL LOT #: 0604L752

WORK ORD	ER: 11343-606-001-9999-	-00					
			SPIKED	INITIAL	SPIKED		DILUTION
SAMPLE	SITE ID	ANALYTE	SAMPLE	RESULT	AMOUNT	*RBCOV	PACTOR (SPK)
	E3222777777	22622888662#444488238	****	******			********
-001	J11JK1	Silver, Total	2.3	0.10u	2.5	92.0	3.0
•		Aluminum, Total	8090	7440	99.6	649.1*	3.0
		Armenic, Total	100	4.8	99.6	95.6	3.0
		Boron, Total	46.8	1.3	49.8	91.4	3.0
		Barium, Total	162	65.7	99.6	96.8	3.0
		Beryllium, Total	2,8	0.32	W.8 2.5	99.2	~ 1 <sup>87</sup> 3.0
		Bismuth, Total	50.2	0.7 <b>6</b> u	1510		100.
		Calcium, Total	5670	4180	1240	119.1	3.0
		Cadmium, Total	3.1	0-81	2.5	91.4	3.0
	•	Cobalt, Total	30.3	6.2	24.9	96.8	3.0
		Chromium, Total	39.2	27.4	10.0	118.0	3.0
		Copper, Total	35.2	23.3	12.4	96.0	3.0
	•	Iron, Total	18700	18200	49.8	1060 *	3.0
		Potassium, Total	2000	802	1240	96.4	3.0
		Lithium, Total	59.4	8.6	49.8	102.0	3.0
		Magnesium, Total	5730	4420	1240	105.1	3.0
		Manganese, Total	290	257	24.9	131.3*	3.0
	•	Molybdenum, Total	47.7	0.43u	49.B	95.8	3.0
		Sodium, Total	1430	217	1240	97.1	3.0
•		Nickel, Total	39.1	14.3	24.9	99.6	3.0
		Phosphorus, Total	917	691	249	90.7	3.0
		Lead, Total	55.8	30.2	24.9	102.8	3.0
		Antimony, Total	10.2	0.66u	24.9	41.0	3.0
		Selenium, Total	93.8	0.70u	99.6	94.2	3.0
		Silicon, Total	724	354	49.8	741.8*	3.0
		Tin, Total	47.0	1.6 u	49.8	94.4	3.0
		Strontium, Total	74.9	25.5	49.8	99.2	3.0
		Thallium, Total	95.3	1.0 u	A 9 99.6	95.7	<b>3.0</b> €
		Uranium, Total	47.2	1.4	42 eas-		72·0 3.0
		Vanadium, Total	66.5	40.9	24.9	102.8	3.0

224

197

Zinc, Total

entury phyloches

24.9 110.8\*

3.0

## INORGANICS PRECISION REPORT 05/25/06

CLIENT: TNUKANFORD RC-051 K0302

LVL LOT #: 0604L752

WORK ORDER: 11343-606-001-9999-00

			INITIAL			DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	REPLICATE	RPD	PACTOR (REP)
*****	*****************	****************		*******	======	
-001RBP	J11JK1	Silver, Total	0.10u	0.10u	NC	3.0
		Aluminum, Total	7440	7480	0.60	3.0
	•	Arsenic, Total	4.8	5.1	6.1	3.0
		Boron, Total	1.3	1.1	16.7	3.0
		Barium, Total	65.7	66.5	1.2	3.0
		Beryllium, Total	0.32	0.34	7.4	3.0
		Bismuth, Total	0.76u	0.76u	NC	3.0
		Calcium, Total	4180	4230	1.2	3.0
		Cadmium, Total	0.81	0.78	3.9	3.0
		Cobalt, Total	6.2	6.1	1.6	3.0
		Chromium, Total	27.4	27.7	1.1	3.0
		Copper, Total	23.3	23,1	0.86	3.0
		Iron, Total	18200	18200	0.024	3.0
		Potassium, Total	802	803	0.14	3.0
		Lithium, Total	8.6	8.7	1.2	3.0
		Magnesium, Total	4420	4440	0.52	3.0
		Manganese, Total	257	260	1.3	3.0
		Molybdenum, Total	0.43u	0.44u	NC	3.0
		Sodium, Total	217	219	0.69	3.0
		Nickel, Total	14.3	14.3	0.00	3.0
		Phosphorus, Total	691	681	1.5	3.0
		Lead, Total	30.2	31.2	3.3	3.0
		Antimony, Total	0.66u	0.661	NC	3.0
		Selenium, Total	0.70u	0.70u	NC	3.0
		Silicon, Total	354	367	3.5	3.0
		Tin, Total	1.6 u	1.6 น	NC	3.0
		Strontium, Total	25.5	25.2	1.2	3.0
		Thallium, Total	1.0 u	1.0 u	NC	3.0
		Uranium, Total	1.4	1.3 u	Now HOW and En	3.0
		Vanadium, Total	40.9	40.8	0.24 WWW.L	3.0
		Zinc, Total	197	197	0.10 MM 5/25/W	3.0

## INORGANICS LABORATORY CONTROL STANDARDS REPORT 05/25/06

CLIENT: TNUHANFORD RC-051 K0302

LVL LOT #: 0604L752

WORK ORDE	R: 11343-606-001-9999-	00				
			SPIKED	SPIKED		
Sample	SITE ID	ANALYTE	SAMPLE	AMOUNT	UNITS	*RECOV
		81111111111111111			252464	****
LC91	06L0257-LC1	Silver, LCS	23,6	25.0	MG/KG	94.4
		Aluminum, LCS	238	250	MG/KG	95.2
		Arsenic, LCS	453	500	MG/KG	90.6
		Boron, LCS	230	250	MG/KG	92.0
		Barium, LCS	241	250	MG/KG	96.2
		Beryllium, LCS	12.0	12.5	MG/KG	96.0
		Bismuth, LCS	49.4	الم محصرح	MG/KG	* 45 mg 481)
		Calcium, LCS	1210	1250	MG/KG	96.6
		Cadmium, LCS	11.9	12.5	MG/KG	95.2
		Cobalt, LCS	119	125	MG/KG	94.9
		Chromium, LCS	24.2	25.0	MG/KG	96.B
		Copper, LCS	60.4	62.5	MG/KG	96.6
		Iron, LCS	242	250	MG/KG	96.0
		Potassium, LCS	1160	1250	MG/KG	92.5
		Lithium, LCS	245	250	MG/KG	97.8
		Magnesium, LCS	1160	1250	MG/KG	93.0
		Manganese, LCS	36.8	37.5	MG/KG	98.1
		Molybdenum, LCS	242	250	MG/KG	96.7
		sodium, LCS	1130	1250	MG/KG	90.6
		Nickel, LCS	95.9	100	MG/KG	95.9
		Phosphorus, LCS	230	250	MG/KG	92.1
		Lead, LCS	118	125	MG/KG	94.5
		Antimony, LCS	141	150	MG/KG	94.0
		Selenium, LCS	441	500	MG/KG	88.1
		Silicon, LCS	126	250	MG/KG	50.5
		Tin, LCS	238	250	MG/KG	95.3
		Strontium, LCS	242	250	MG/KG	97.0
		Thallium, LCS	470	500 م	MG/KG	94.1
		Uranium, LCS	47.8	), - <del>****</del> *	MG/KG	x -20-2 95.6
		Vanadium, LCS	120	125	MG/KG	95.8

Zinc, LCS

A corrected

47.6 50.0 MG/KG 95.2

ORIGINAL

"COMPOSITE"

<del></del>	Closure Hanford		CI	IAIN OF CUST	TODY/S	AMPL	E ANAL	YSIS	REQ	UEST		RC-	051-112	Page 2	id <u>3</u>
Collector Company Contact Telephone No. Project Coord STANKOVICH. M. JOAN KESSNER 375-4688 KESSNER, JH					-	ator 1	rice Code	8L	Data Tu						
Project Designation 100 & 300 Area Co	imponent of the RCBRA - Incres			ing Location H RIPARIAN #9					SAF N RC-05		A	ir Quality	U	45	Day:
Ice Chest No.				ozbook No. 1596-1		COA BESRAS	6520		Method FED	l of Shipn EX	ent				
Shipped To EBERLINE SERV	CES (LIONVILLE)	-		Property No.	•					Lading/A OSPC	ir Bill No	),			
POSSIBLE SAMPL	E HAZARDS/REMARKS						T								1
NONE				Preservation	None	Nome	None	Nen	• /	None	None	None	None	None	No
Special Handling	and/or Storage			Type of Container	G/P	G/P	aG	aG	7	aG	uG	G/P	G/P	^	<u> </u>
Use page 3 for origin	al material to Corvallis for MI			No. of Container(s)	9	9	7	<u> </u>		7	7	7	.7	0	<u> </u>
	r radioanalytical fractions to El al fractions to Lionville.	beriwe, & pag	ge 2	Volume	30g	30g	30g	30		30g	30g	30g	30g	Į^	
	SAMPLE ANA	LYSIS			See item (1) in Special Instructions,	Chromiun Hex - 7196	Seni-VOA 8270A (TCL)	PAHS	8310 P	sticides - 8081	PCBs - 8083	IC Anims - 300.0 (Nitrae)	NG2/NG3 - 353.2 {Nittogen in Nutrie mid Nitrate}	-	
Sample No.	Matrix *	Sample	Date	Sample Time			1/2/4/5	1		Ā · .	<del> </del>			<del></del> ,	†
J11JK1	SOIL	4-1	0 - 0	6 09:00	3	1	1			ı					
JIIVK2				10:38	1	3	3	17		1	Ţ	1	1		
JIIJK3				12'.00	ŀ	1	1			3	3	\	ĺ		ļ
JIIJKY				13:56	l	L	1			(	- (	3	.3		<u> </u>
J111 K5				14:00	3	3	Į.	ľ		1	ι				<u> </u>
CHAIN OF PO Relinquished By/Removed Relinquished By/Removed Relinquished By/Removed Relinquished By/Removed Relinquished By/Removed	From Date/Time  From Date/Time //.  Trong 4-11-0  From Date/Time  #/0/08 0925  From Date/Time  From Date/Time	Received 30 Received	By/Store By/Store By/Store By/Store	ed in Di	ate/Time  ate/Time  ( - 06  ate/Time  de/Time  ate/Time	32) Con (1) Cad Moi	ysis fraction. These marks ind tact Joan Kessn ICP Metals - 60 mium, Calcium.	cate that vicate that ver for any 110 (Fult 1 Chromio et, Phospir	this is a n questions list) {Alur m, Cobalt. torus, Pote	on-analysis i ninum, Anti Copper, Iro	mony, Arse	eluded with Stran perty format CO nie, Barium, Ber ahlum, Magnesia m, Silver, Sodian	C form. ylitam, Bisma m, Mangares	lli. Boraa,	Minter Sastal Ste-Sodis SOESOI SEASOI VE WA OPOR FEAR UNDED TATOR VE Veps Xat Other
LABORATORY   F	eccived By				Tic	ile							1	Jate/Pane	
<del></del>	Disposal Method			······································			Dispo	osed By	· · · · ·				i	Lite/Ving	<del></del>

## CH2M HILL Soil Sampling Bench Sheet Spring 2006

Project ID   WCH	
Tray #         /3         Tare Wt.         1450 gm.           Total Dry Wt. 4695, 3 gm.         Net Dry Wt. 3245, 3 gm.           ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS           Analyte         Sample Time         Grams Needed         Grams Collected         I           GEA         0900         400 g	
Net Dry Wt. 4695, 3 gm.   Net Dry Wt. 3245, 3 gm.	
ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS    Analyte	
Analyte   Sample Time   Grams Needed   Grams Collected   I	
GEA	
RAD STR       30 g       30 1         ICP MET       30 g       30 .1         HEX CR       30 g       30 .1         SEMI VOA       30 g       30 .1         PEST       30 g       30 .1         PCB       30 g       30 .1         IC ANION       30 g       30 .1         NO2/NO3       30 g       30 .1         RAD STR MS       30 g       30 .1         ICP MET MS       30 g       30 .1	Initials
RAD STR       30 g       30 1         ICP MET       30 g       30 .1         HEX CR       30 g       30 .1         SEMI VOA       30 g       30 .1         PEST       30 g       30 .1         PCB       30 g       30 .1         IC ANION       30 g       30 .1         NO2/NO3       30 g       30 .1         RAD STR MS       30 g       30 .1         ICP MET MS       30 g       30 .1	1.01
ICP MET	100
HEX CR  SEMI VOA  SEMI VOA  PEST  PCB  IC ANION  NO2/NO3  RAD STR MS  RAD STR MSD  ICP MET MS  SEMI VOA  30 g  30 g  30 .1	-+-
SEMI VOA         30 g         30 l           PEST         30 g         30 l           PCB         30 g         30 l           IC ANION         30 g         30 l           NO2/NO3         30 g         30 l           RAD STR MS         30 g         30 l           RAD STR MSD         30 g         30 l           ICP MET MS         30 g         30 l	<del></del>
PEST       30 g       30 l         PCB       30 g       30 l         IC ANION       30 g       30 l         NO2/NO3       30 g       30 l         RAD STR MS       30 g       30 l         RAD STR MSD       30 g       30 l         ICP MET MS       30 g       30 l	
CANION   30 g   30 \cdot \cd	<del></del>
IC ANION   30 g   30 N   NO2/NO3   NO3/NO3   NO2/NO3   NO2/NO3   NO2/NO3   NO2/NO3   NO2/NO3   NO2/NO3   NO3/NO3   NO3/NO3/NO3   NO3/NO3/NO3   NO3/NO3/NO3   NO3/NO3/NO3/NO3/NO3/NO3/NO3/NO3/NO3/NO3/	<del>-  </del>
NO2/NO3         30 g         30 l           RAD STR MS         30 g         30 l           RAD STR MSD         30 g         30 l           ICP MET MS         /         30 g         30 l	<del></del>
RAD STR MS         30 g         30.0           RAD STR MSD         30 g         30.1           ICP MET MS         /         30 g         30.1	
RAD STR MSD	_
ICP MET MS / 30 g 30	
	1
Comments:	
Name (print): Kelly Ensor Signature: allusensor	

Sub-Sampled Date:

## CH2M HILL Soil Sampling Bench Sheet Spring 2006

Project ID WOL		Punios # 226764	A C 77	
Project ID WCH	<del></del>	Project # 336761.	10.22	
Site # 100-H RIPARIAN # 9	<u>) .</u>	Sample # J11JK2	-	
Tray# <u>52</u>	_	Tare Wt.   14	<u>58</u> gm.	
Total Dry Wt. 4878,7	_gm.	Net Dry Wt. 3년	120,7 gm.	
ALL SAMPLES COLLECTED B	ELOW CONSIST O	F 50 SAMPLE INCREME	NTS	
Analyte	Sample Time	Grams Needed	Grams Collected	initials
GEA	1038	400 g	401.3	Rec
RAD STR		30 g	.3℃ i L	
ICP MET		30 g	30.5	
HEX CR		30 g	35.3 30.5	
SEMI VOA		30 g	30.5	
PEST	<del>  </del>	30 g	20.3	
PCB	<del> </del>	30 g	30.2	
IC ANION	<del></del>	30 g	30.3	
NO2/NO3	· <del> </del>	30 g	.30.1	<del>                                     </del>
HEX CR MS		30 g	30.2	
HEX CR MSD		30 g	30,4	
SEMI VOA MS SEMI VOA MSD	<del>                                     </del>	30 g	30.3	
SEMI VOA MOD	¥	30 g	30.5	
Comments:				
Name (print): Kelly	5 <u>nsor</u>	Signature:	MyEnn	
Sub-Sampled Date:	110100		/	

## CH2M HILL Soil Sampling Bench Sheet Spring 2006

Project ID WCH		Drainat # 226761	AO 77	
1 TOJECE ID WOLL	~	Project # 336761.	<u> </u>	
Site # 100-H RIPARIAN # 9	<u> </u>	Sample # J11JK3	<del></del>	
Tray# <u>2.7</u>	<b></b>	Tare Wt. 140	gm.	
Total Dry Wt. 4566.9	_gm.	Net Dry Wt. 310	⊙6.⊖ gm.	
ALL SAMPLES COLLECTED B	ELOW CONSIST OF	50 SAMPLE INCREME	ENTS	
Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	12:00	400 -	1000	1 0141
RAD STR	12.00	400 g 30 g	400.57 30.20	AW
ICP MET	<del></del>	30 g	30.08	
HEX CR	<del> </del>	30 g	30.07	<del></del>
SEMI VOA		30 g	30.17	
PEST		30 g	30,36	<del>                                     </del>
PCB		30 g	30,00	<del></del>
IC ANION		30 g	30.14	<del>-  </del>
NO2/NO3		30 g	30.02	
PEST MS		30 g	30.22	
PEST MSD		30 g	30.25	
PCB MS		30 g	30,09	
PCB MSD	i i	30 g	30.09	1
Comments:			:	
Name (print): Ashley Wi	lle	Signature:	Megacia	
Sub-Sampled Date: 4/10	106			

# CH2M HILL Soil Sampling Bench Sheet Spring 2006

Project ID WCH	<del></del>	Project # 336761.	AO.ZZ	
Site # 100-H RIPARIA	N # 9_	Sample # J11JK4		
Tray#	53	Tare Wt. 140	<b>g</b> m.	
Total Dry Wt. 4560	<u>∫</u> gm.	Net Dry Wt ろ	gm.	
ALL SAMPLES COLLECT	ED BELOW CONSIST OF	F 50 SAMPLE INCREME	ENTS	
Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	1356	400 g	400.3	T bee
RAD STR	1300	30 g	30.1	1 7
ICP MET		30 g	30.0	
HEX CR		30 g	30.4	
SEMI VOA		30 g	30.3	
PEST		30 g	30.2	
PCB		30 g	30.0	
IC ANION		30 g	30.1	
NO2/NO3		30 g	30.0	
IC ANION MS		30 g	30.3	
IC ANION MSD		30 g	30.1	1.
NO2/NO3 MS		30 g	50.5	
NO2/NO3 MSD		30 g	_30.3	
Comments:			<u> </u>	
Name (print): Kelly	Ensor	Signature:	lyEnor	
Sub Samulad Data:	Histor		/	

## CH2M HILL Soil Sampling Bench Sheet Spring 2006

Project ID WCH	_	Project # 336761.A	O.ZZ	
Site# 100-H RIPARIAN#9	_	Sample # J11JK5		
Tray# 40	_	Tare Wt. 14	<sub>φ</sub> Ø gm.	
Total Dry Wt. 4954,7	_gm.	Net Dry Wt. 34	†4. 7 gm.	
ALL SAMPLES COLLECTED BE	ELOW CONSIST OF	50 SAMPLE INCREMEN	ITS	
Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	1.7.	100 -	1 110 5 4 5	Km
RAD STR	14:00	400 g	30.90	1
ICP MET	<del>  </del>	30 g 30 g	30.23	
HEX CR	<del>                                     </del>	30 g	30.09	<del>                                     </del>
SEMI VOA		30 g	30.10	
PEST		30 g	30.46	
РСВ		30 g	30.90	1 1
IC ANION		30 g	31.23	
NO2/NO3		30 g	30.41	
ICP MET MS		30 g	30.40	
ICP MET MSD		30 g	30.39	
HEX CR MS		30 g	30.05	
HEX CR MSD		30 g	30.56	
Comments:				
Name (print): Katic Mu	rey	Signature: Kuc	-Mayly	
Sub-Sampled Date: OHNO	100		10	

## Lionville Laboratory Incorporated SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT:

Purchase Order / Project# / SAF# / SOW# / Release #:

LvLI Batch #:

Date:

Sample Custodian:

	NOTE: EXP	LAIN ALL DI	SCREPANCI	ES	· · · · · · · · · · · · · · · · · · ·
1.	Samples Hand Delivered or Shipped	Carrier (-	ed Er	Airbill# 6	595-0631357
2.	Custody seals on coolers or shipping container intact, signed and dated?	D.YES	□ No	C) No Seals	Comments
3.	Outside of coolers or shipping containers are free from damage?	□ yes	□ No		
4.	All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?	Ves	□ No		
5.	Samples received cooled or ambient?	Temp /7	4 °C ·	Cooler#	
6.	Custody seals on sample containers intact, signed and dated?	D/Es	□ No	🗆 No Scals	
7.	coc signed and dated?	Ø Yes	□ No		
8.	Sample containers are intact?	DYes ph	□ No		
9.	All samples on coc received? All samples received on coc?	Mary Cas	ØN₀ #00	15 M For Aviens Pec one Each Fo 8990 > TET. SE O	NOT REC'D STONT ILL ECORDING TO LABOL
10.	All sample label information matches coc?	EYes	□ No		
11.	Samples properly preserved?	ti Yes	□ No		
12.	Samples received within hold times? Short holds taken to wet lab?	D Yes	□ No		
13.	VOA, TOC, TOX free of headspace?	☐ Yes	□ No	DWA	
14.	QC stickers placed on bottles designated by client?	QX's	□ No	□ N/A	
15.	Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy)	DY's	□ N <sub>0</sub>	فاد	,
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	D.Xts	□ No	H No Discrepancies	



## Lionville Laboratory, Inc. INORGANIC ANALYTICAL DATA PACKAGE FOR TNUHANFORD RC-051 K0302

DATE RECEIVED: 04/12/06 LVL LOT # :0604L752

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSĮS
J11JK1						
NITRATE BY IC	001	s	06LICD52	04/10/06	05/30/06	05/30/06
CHROMIUM VI NITRATE NITRITE	001 001	S S	06LVI029 06LN3043	04/10/06 04/10/06	04/22/06 05/31/06	04/22/06 05/31/06
J11JK2	001	5	001113043	04/10/00	03/31/00	03/31/06
NITRATE BY IC	002	S	06LICD52	04/10/06	05/30/06	05/31/06
CHROMIUM VI	002	S	06LVI029	04/10/06	04/22/06	04/22/06
CHROMIUM VI	002 REP	S	06LVI029	04/10/06	04/22/06	04/22/06
CHROMIUM VI NITRATE NITRITE	002 MS 002	s s	06LVI029 06LN3043	04/10/06 04/10/06	04/22/06 05/31/06	04/22/06 05/31/06
J11JK3						
NITRATE BY IC	003	s	06LICD52	04/10/06	05/30/06	05/31/06
CHROMIUM VI	003	s	06LVI029	04/10/06	04/22/06	04/22/06
NITRATE NITRITE	003	S.	06LN3043	04/10/06	05/31/06	05/31/06
J11JK4						
NITRATE BY IC	004	s	06LICD52	04/10/06	05/30/06	05/31/06
NITRATE BY IC	004 REP	S	06LICD52	04/10/06	05/30/06	05/31/06
NITRATE BY IC	004 MS	S	06LICD52	04/10/06	05/30/06	05/31/06
CHROMIUM VI	004	s	06LVI029	04/10/06	04/22/06	04/22/06
NITRATE NITRITE	004	S	06LN3043	04/10/06	05/31/06	05/31/06
NITRATE NITRITE NITRATE NITRITE	004 REP 004 MS	s S	06LN3043	04/10/06 04/10/06	05/31/06 05/31/06	05/31/06 05/31/06
J11JK5			002213013	01,10,00	03/31/00	03, 31, 00
NITRATE BY IC	005	S	06LICD52	04/10/06	05/30/06	05/31/06
CHROMIUM VI	005	S	06LVI029	04/10/06	04/22/06	04/22/06
NITRATE NITRITE	005	s	06LN3043	04/10/06	05/31/06	05/31/06
AB QC:		•			•	
· ·						
NITRATE BY IC	MB1	s	06LICD52	n/a	05/30/06	05/30/06

## Lionville Laboratory, Inc. INORGANIC ANALYTICAL DATA PACKAGE FOR TNUHANFORD RC-051 K0302

DATE RECEIVED: 04/12/06

LVL LOT # :0604L752

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
	ND1 D0		067.760.50	>+ / >	05/20/05	05/20/06
NITRATE BY IC CHROMIUM VI	MB1 BS MB1	s s	06LICD52 06LVI029	N/A N/A	05/30/06 04/22/06	05/30/06 04/22/06
CHROMIUM VI CHROMIUM VI	MB1 BS MB1 BSD	s s	06LVI029 06LVI029	N/A N/A	04/22/06 04/22/06	04/22/06 04/22/06
NITRATE NITRITE	MB1 BSD	S	06LN3043	N/A N/A	04/22/06	05/31/06
NITRATE NITRITE	MB1 BS	S	06LN3043	N/A	05/31/06	05/31/06



## **Analytical Report**

Client: TNU-HANFORD RC-051 K0302 W.O.#: 11343-606-001-9999-00

LVL#: 0604L752 Date Received: 04-12-06

## **INORGANIC NARRATIVE**

1. This narrative covers the analyses of 5 soil samples.

2. The samples were prepared and analyzed in accordance with the methods checked on the attached glossary with the exception of the sample digestate compilation modification requested by the client for Chromium VI. The total sample mass submitted for each sample number was determined and then portioned for the digestion preparation step and the subsequent digestates were composited prior to the colorimetric analysis. For Nitrate Nitrite and IC analyses, the sample extraction ratios were 1:10 using the total sample masses submitted. The Nitrate Nitrite extracts were preserved with sulfuric acid prior to analysis. The sample weights were as follows:

LvLI Sample	Site ID	Cr6+ sample	Nitrate-Nitrite
		wt,g	IC Nitrate
			sample wt,g
0604L752-001	J11JK1	30.045	30.064
0604L752-002	J11JK2	30.150	NA
0604L752-002 dup	J11JK2	30.378	NA
0604L752-002 spk	J11JK2	30.066	30.286
0604L752-003	J11JK3	30.303	30.180
0604L752-004	J11JK4	30.332	30.116
0604L752-004 dup	J11JK4	NA	30.124
0604L752-004 spk	J11JK4	NA	30.333
0604L752-005	J11JK5	30.553	30.872

Elevated reporting limits for Chromium VI are the result of the necessity to dilute the samples to diminish background color of the digestates.

LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete list of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

- 3. Sample holding times as required by the method and/or contract were met.
- 4. The results presented in this report are derived from samples that did not meet LvLI's sample acceptance policy as noted on the Sample Receipt Checklist.
- 5. The method blanks were within the method criteria.
- 6. The Laboratory Control Samples (LCS) were within the laboratory control limits.
- 7. The matrix spike recoveries for Soluble Chromium VI, Nitrate and Nitrate Nitrite were within the 75-125% control limits.
- 8. The replicate analysis for Chromium VI was within the 20% Relative Percent Difference (RPD) control limit however replicate analyses for Nitrate and Nitrate Nitrite were outside the control limit that may be attributed to sample inhomogeneity.
- 9. Results for solid samples were reported on an "as received" weight basis.
- 10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels

Laboratory Manager

Lionville Laboratory Incorporated

njp\04-752

Date



## Lionville Laboratory Incorporated

## WET CHEMISTRY

## METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	<u>ASTM</u>	<u>SW846</u>	<u>OTHER</u>
% Ash	D2216-80		
% Moisture	D2216-80		ILMO4.0 (e)
% Solids	D2216-80		ILMO4.0 (e)
% Volatile Solids	D2216-80		
ASTM Extraction in Water	D3987-81/85		
BTU			
CEC	<del></del>	,9081	c
Chromium VI		3060A/7196A	
Corrosivity by coupon by pH		1110(mod) 9045C	
Cyanide, Total		9010B	ILMO4.0 (e)
Cyanide, Reactive		Section 7.3/9014	<del>_</del>
Halides, Extractable Organic		9020B	EPA 600/4/84-008
Halides, Total		9020B	EPA 600/4/84-008
EP Toxicity	•	1310A	
Flash Point		1010	
Ignitability		1010	
Oil & Grease		9071A	
Carbon, Total Organic		9060	Lloyd Kahn (mod)
Oxygen Bomb Prep for Anions	D240-87(mod)	5050	_
Petroleum Hydrocarbons, Total Reco	overable	9071	EPA 418.1
pH, Soil		9045C	
Sulfide, Reactive		Section 7.3/9030B	
Sulfide		9030B(mod)	
Specific Gravity	D1429-76C/ _	D5057-90	
Sulfur, Total		9056	•
Synthetic Preparation Leach	•	1312	
Paint Filter		9095A	
Other: Thate	Method:	EPA 300.0	
Other: Tiltate Willet	Method	5P4353.2 (mod	
	•		,

## **Lionville Laboratory Incorporated**

## METHOD REFERENCES AND DATA QUALIFIERS

## **DATA QUALIFIERS**

- U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.
- \* = Indicates that the original sample result is greater than 4x the spike amount added.

## **ABBREVIATIONS**

MB = Method or Preparation Blank.

MS = Matrix Spike.

MSD = Matrix Spike Duplicate.

REP = Sample Replicate

LC = Laboratory Control Sample.

NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

## **ANALYTICAL WET CHEMISTRY METHODS**

- ASTM Standard Methods.
- USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).
- 3. Test Methods for Evaluating Solid Waste (USEPA SW-846).
- a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).
- b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).
- c. <u>Method of Soil Analysis</u>, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).
- d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).
- e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.
- f. Code of Federal Regulations.

#### INORGANICS DATA SUMMARY REPORT 06/02/06

CLIENT: TNUHANFORD RC-051 K0302

LVL LOT #: 0604L752

WORK	CRDER:	11343-606-001-9999-00

		•			REPORTING	DILUTION
SAMPLE	SITE ID	ANALYTE	result	UNITS	LIMIT	FACTOR
		****	******	*	*******	******
-001	J11 <b>JK1</b>	Nitrate by IC	52.5	MG/KG	2.50	1.0
		Chromium VI	0.20 น	MG/KG	0.20	1.0
		Nitrate Nitrite	11.6	MG/KG	0.40	2.0
-002	J11JK2	Nitrate by IC	31.6	MG/KG	2.48	1.0
		Chromium VI	0.20 u	MG/KG	0.20	1.0
		Nitrate Nitrite	7.0	MG/KG	0.20	1.0
-003	J11JK3	Nitrate by IC	28.2	MG/KG	2.48	1.0
		Chromium VI	0.20 u	MG/KG	0.20	1.0
		Nitrate Nitrite	6.5	MG/KG	0.20	1.0
-004	J11JK4	Nitrate by IC	26.1	MG/KG	2.49	1.0
		Chromium VI	0.20 u	MG/KG	0.20	1.0
		Nitrate Nitrite	5.9	MG/KG	0.20	1.0
-005	J11JK5	Nitrate by IC	25.7	MG/KG	2.43	1.0
		Chromium VI	0.20 u	MG/KG	0.20	1.0
		Nitrate Nitrite	5.7	MG/KG	0.19	1.0

## INORGANICS METHOD BLANK DATA SUMMARY PAGE 06/02/06

CLIENT: TNUHANFORD RC-051 K0302

LVL LOT #: 0604L752

WORK ORDER: 11343-606-001-9999-00

notal office	11,10				REPORTING	DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	LIMIT	FACTOR
	*********					
BLANK10	06LICD52-MB1	Nitrate by IC	2.50 u	MG/KG	2.50	1.0
BLANK10	06LV1029-MB1	Chromium VI	0.20 u	MG/KG	0.20	1.0
BLANK10	06LN3043-MB1	Nitrate Nitrite	0.20 u	MG/KG	0.20	1.0

## INORGANICS ACCURACY REPORT 06/02/06

CLIENT: TNUHANFORD RC-051 K0302

LVL LOT #: 0604L752

WORK	ORDER:	11343-606-001-9999-00
WURK	UKDLK:	11343-606-001-9997-0

			SPIKED	INITIAL	SPIKED		DILUTION
SAMPLE	SITE ID	ANALYTE	SAMPLE	RESULT	TIUUOMA	*RECOV	FACTOR (SPK)
		*************	***				******
-002	J11JK2	Soluble Chromium VI	4.0	0.20u	4.0	105.2	1.0
-004	J11JK4	Nitrate by IC	75.7	26.1	49.0	101.3	1.0
		Nitrate Nitrite	16.4	5.9	9.9	105.8	2.0
BLANK10	06LICD52-MB1	Nitrate by IC	48.8	2.50u	50.0	97.6	1.0
BLANK10	06LVI029-MB1	Soluble Chromium VI	3.9	0.20u	4.0	96.6	1.0
		Insoluble Chromium VI	1080	0.20u	1010	106.4	100
BLANKID	06LN3043-MB1	Nitrate Nitrite	5.2	0.20u	5.0	104.2	1.0

## INORGANICS PRECISION REPORT 06/02/06

CLIENT: TNUHANFORD RC-051 K0302

LVL LOT #: 0604L752

WORK ORDER: 11343-606-001-9999-00

			INITIAL			DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	REPLICATE	RPD	FACTOR (REP)
*****						********
-002REP	J11JK2	Chromium VI	0.20u	0.20u	NC	1.0
-004RBP	J11JK4	Nitrate by IC	26.1	35.6	31.1	1.0
		Nitrate Nitrite	5.9	8.3	33.3	2.0

nville Labo			C	usto	ody T	rai	nsf	er	Rec	ord,	Lab	W	ork	Re	eq!	ues	<b>t</b> Pa	ge(	_ of _ ,	<sup>/</sup> See	9 5	RC	A Partie
1604	175	-J	]		FIELD	PER	SON	NEL:	COMP	LETE (	ONLY S	HAD		REAS		6,1		1	ربار,	W.	OPX		. (
ent TNU	Wai		· CA	-w-K	PINE	7.5		.gb.3.	Refrige	rator#		1	12	12	T	Ta-		7	기	2	7	2	
Final Proj ject #/	. Samp	ling Date	煌. 疾症						#/Type	Container	Liquid	- 1	G	G		6			a	G	G	C-	
ect Contac	t/Phon	e #							Volume		Liquid	: }		307		309			507				
viile Labor	ratory F	Project Ma اردے	iuager		- 2 <b>V</b>	4	-	=	Preserv	rives		<del>                                     </del>	<del></del>			-				<i>3:9</i> _	<del>     </del>	30%	
Spas	_ De	1-214	TA : د <u>ر .</u>	Τ	o izay	<u>مس0</u>		<u>:                                    </u>				1	ORC	SANIC	<del></del>	<del> </del>			INONG	/. <u>-</u> -	N.2	1140	
Rec'd	4/1	1/06	Date	Due	5/12/1	6		<u> </u>	REQUE			Š Š	BNA	Pest/	Herb	Cosi			Metal S	WEN	115	CHLIN	
30X			-											,	1		Lionvi	le Labo	ratory U	se Only	7	1	
ES: Scill Sediment Solid Sludge Water	Lab ID		Client	ID/Descri	ption		Che	itrix IC Deen /) MSD	Matrix	Date Collecte	Time Id Collecti	ed .	DI025H	DOOSH		OPLB		1	METAISS	IN 163	THENT.	TORG	
Oil Air Drum Soilds Drum Liquids	001	711	マド		ing Adda Jacob Silangan Mada	, g	'را	1	الترك	4.00	0900		17	1		17			3	17	1	1/1	
	also.			2			1	1			1038		3	$\prod I$		1				1	1	.5	<u>i</u>
	003	1.44		3			<b>U</b>			-1	1200		Î,	3		3			/	7	1	1	
EP/TCLP Leachate	014			4			1				1356			1		7			1	3	3	1	Ì
Wipe Other	005			5					<u>_</u>	L	1400		1	1		,			3	1	1	3	
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								- # 4 j.						11.7							1		
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Cal Instruc 1,50L	- ] D = 1	1	003 004:	Past. Te Aninh Li, M	Her CHRIM POB IS, NET NY, 10, P, Si				13		oe_	on	So	googl	e I	011	1-T K	55					
elinquished by	'	Receiv by	<del></del>	Date	Time			uished y		Receive by	od	Date	π	me	$\perp$	Relinqui by	<del></del>		Receive by		Date		inte
DE0	· [	1/African	4	196	0925		<u>.</u>				[				•	COV	<b>NPOS</b>	ITE		OR	GIN	AL	
		-	$\mathcal{I}$		Ţ <u></u>					,						W	ASTE"			REV	1001	14 FE 87	

Washington Close	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST							L	RC-051-112 Page 2 % 2						
Collector Company Contact STANKOVICH, M. JOAN KESSNER					Telephor 375-40							Price Code SL Dain			uraatu
Project Designation 100 & 300 Area Componen	t of the RCBRA - Incren	nental So		ing Location -H RIPARIAN #9			SAF No. RC-051					Air Quality		45	Days
Ice Chest No.			-	Logbook No. 1596-l		COA BESRA	66520		1	od of Shin DEX	onsent				
Shipped To EBERLINE SERVICES	IONVILLE	· · · · · · · · ·		Property No. 0151						f Ladino E OSPC	Air Bill l	No.			
POSSIBLE SAMPLE HAZ	ARDS/REMARKS								- /						
NONE Preservation					None	None	None	Num	-	None	None	Nose	None	None	None
Special Handling and/or	Storage			Type of Container	G/P	G/P	аG	aG		aG	зG	G/P	CA6	^	^
Use page 3 for original mate	rial to Corvallis for MIS	S preparation	ı and	No. of Container(s)	9	9	1			7	7		7	Ü	Ü
aliquoting, page I for radioa for chemical analytical fracti		berline, & pa	ge 2	Volume	30g	30g	30g	30	7	30g	30g	30g	306	[^	1^
7.	SAMPLE ANA	LYSIS	· "_		See item (i) in Special Instructions.	Chronium Hex - 719		1 /	00	Pessicides - 8081	PCBs - \$0	JC Anisms - 300.0 (Nitrane	NO2/NO3 - 553 & (Nitropea in Nature)	-	
Sample No.	Matrix *	Sama	le Date	Sample Time			e a light yang sekal		/ 	-	<del> </del>		<del> </del>	ļ	<del></del>
J11JK1	<del></del>				<del> </del>				خيرة ح	* * * * *	ļ. 		<del> </del>	<del> </del>	_
	SOIL	4-1	10 - C	10:38	3	-	1	₩		<u> </u>			1		
J113K2	<del>                                     </del>	<del> </del>	<del></del>	12'.00	1	3	3	╂/		2			<del>                                     </del>	<del> </del>	<del> </del>
J11JK3		<del> </del>	+	13:56	<u> </u>	<del>                                     </del>	-	₩	-	3_	3	<del></del>		ļ	-}
1111K4 1111K5	<del>                                     </del>	<del> </del> -	+	14:00		3		╀		<del>'</del>		3	3_		- <del> </del> -
CHAIN OF POSSESSI	ON	Sie	n/Print	Names			CIAL INST	L			<u> </u>		, ,	<u> </u>	Matrix *
Relinquished By/Removed From Relinquished By/Removed From Relinquished By/Removed From LABORATORY   Received	Date/Time  Date/Time  Date/Time  Date/Time	Received	By/Ston	ed in D  A Hill —  B Hill	ate/Time    - 06     - 06     - 072     - 092     ate/Time     ate/Time     ate/Time     ate/Time     ate/Time     ate/Time	ana (1) Cac Mo	These marks indi lysis fraction.  These marks induct Joan Kessn  ICP Metals - 66  Imium, Calcium.	icate that i dicate that ser for any DIO (Full I Chromius el, Phosph	this is a question ist)   Ale m, Cobai torus, Po	non-anatys 5. iminum Ar t. Copper.	is used to p stimony, Ar ron, Lead.	included with Stro roperty format CO rsenie, Barium, Be Githium, Magnesi icon, Silver, Sodiu	C form. ryllium, Bisusu um, Manganese nx, Strontium, T	dt. Boron,	No Site 1 Side Sections 1 Side Sections 1 Side State Site Site Site Site Site Site Site Si
SECTION FINAL SAMPLE Disposal N	delhad	······			<del></del> _		<del></del>	<u> </u>			· <del>-</del>				·
DISPOSITION Disposal of	MC#100						Disp	osed By					1	Date Time	

## CH2M HILL Soil Sampling Bench Sheet Spring 2006

Project ID WCH		Project # 336761./	40. <i>ZZ</i>						
	-		, <u>, , , , , , , , , , , , , , , , , , </u>						
Site# 100-H RIPARIAN # 9	<del>-</del>	Sample # J11JK1							
Tray# <u>/3</u>	-	Tare Wt.	450 gm.						
Total Dry Wt. 4695, 3	_gm.	Net Dry Wt. 3245, 3 gm.							
ALL SAMPLES COLLECTED BI	ELOW CONSIST OF	50 SAMPLE INCREME	NTS						
Analyte	Sample Time	Grams Needed	Grams Collected	Initials					
GEA	1 0900	400 g	400.9	Then					
RAD STR	105700	30 g	30,1	100					
ICP MET		30 g	30.1						
HEX CR		30 g	30.0						
SEMIVOA		30 g	30.1						
PEST		30 g	30.1						
PCB		30 g	30.1						
IC ANION		30 g	30.1						
NO2/NO3		30 g	30.1						
RAD STR MS		30 g	30.0						
RAD STR MSD		30 g	30.1						
ICP MET MS		30 g	3011						
ICP MET MSD		30 g	30.3	V					
Comments:									
Name (print): Kelly En	<u>50~</u>	Signature:	Muxnow						

# CH2M HILL Soil Sampling Bench Sheet Spring 2006

Project ID WCH		Project # 336761.	AO.ZZ	
Site# 100-H RIPARIAN	N#9	Sample # J11JK2		
Tray# 52		Tare Wt. 14	58 gm.	
Total Dry Wt. 4878.	gm.	Net Dry Wt. 34	120.7 gm.	
ALL SAMPLES COLLECTE	ED BELOW CONSIST OF	50 SAMPLE INCREME	ENTS	
Analyte	Sample Time	Grams Needed	Grams Collected	Initials
GEA	1038	400 g	401.3	Ru
RAD STR		30 g	30-1	
ICP MET		30 g	30.5	
HEX CR		30 g	30.3	<del></del>
SEMI VOA		30 g	30.5	<del></del>
PEST PCB	<del></del>	30 g	50.3	<del>- -  </del>
IC ANION		30 g 30 g	30.2	<del></del>
NO2/NO3		30 g	30.3	<del></del>
HEX CR MS		30 g	30.2	<del>                                     </del>
HEX CR MSD		30 g	30.4	<del>-   </del>
SEMI VOA MS	<del></del>	30 g	30.3	<del>                                     </del>
SEMI VOA MSD	<del></del>	30 g	30.5	
	· · · · · · · · · · · · · · · · · · ·		<del></del>	<del></del>
L				
Comments:		**************************************		
				<del> </del>
Name (print): Kel	14 Ensor	Signature:	MyEnn	
Sub-Sampled Date:	SILIDIAL		/	

## CH2M HILL Soil Sampling Bench Sheet Spring 2006

Project ID WCH       Project # 336761.AO.ZZ         Site # 100-H RIPARIAN # 9       Sample # J11JK3         Tray # 2.7       Tare Wt. 14.60 gm.         Total Dry Wt. 4566.9 gm.       Net Dry Wt. 3106.9 gm.	
Tray# 27 Tare Wt. 1460 gm.	
Total Dry Wt 4566.9 gm Net Dry Wt 3106.9 gm	
iotal big vit.	
ALL SAMPLES COLLECTED BELOW CONSIST OF 50 SAMPLE INCREMENTS	
<del> </del>	<del></del>
Analyte Sample Time Grams Needed Grams Collected Initia	is
GEA 12:00 400 g 400.57 A	$\overline{\mathbb{V}}$
RAD STR 1 30 g 30.20	<del>/</del>
ICP MET 30 g 30.08	
HEX CR   30 g   30.07	
PEST 30 g 30,36	
PCB 30 g 30.00	
IC ANION 30 g 30,17	<del></del>
NO2/NO3 30 g 30.002	
PEST MS 30 g 30.22	
PEST MSD 30 g 30.25	
PCB MS 30 g 50,09	
PCB MSD 30 g 30,09	<u> </u>
70,00	
Comments:	
Name (print): Ashley Wille Signature: Alley BCC	
Sub-Sampled Date: 4/10/06	

# CH2M HILL Soil Sampling Bench Sheet Spring 2006

Project ID WCH	_	Project # 336761.A	O.ZZ	
Site # 100-H RIPARIAN # 9	_	Sample# J11JK4		
Tray# 2 53	_	Tare Wt. 146	∂ gm.	
Total Dry Wt. 4560.1	_gm.	Net Dry Wt. 3	1001 gm.	r
ALL SAMPLES COLLECTED BE	ELOW CONSIST OF	50 SAMPLE INCREME	NTS	
			1	1
Analyte	Sample Time	Grams Needed	Grams Collected	Initials
	1 - 1 - 27		1	1 / 15
GEA RAD STR	1356	400 g	100.3	her
ICP MET	<del> </del>	30 g	30.1	<del>-  </del>
HEX CR	<del> </del>	30 g 30 g	30.0	
SEMI VOA	<del> </del>	30 g	30.4	
PEST	<del> </del>	30 g	30.2	+ + -
PCB	<del></del>	30 g	30.0	1 1
IC ANION		30 g	30.1	1 1
NO2/NO3		30 g	30.0	<del> </del>
IC ANION MS		30 g	30.3	1
IC ANION MSD		30 g	30.1	
NO2/NO3 MS	† †	30 g	30.5	1-1-
NO2/NO3 MSD		30 g	30.3	
<u> </u>				<del>-</del>
	<u> </u>		<u></u>	
Comments:		· · · · · · · · · · · · · · · · · · ·		
		<del> </del>		
ν -			n	
Name (print): Felly Er	150r	Signature:	upmor	<del></del> -
Sub-Sampled Date: 4//C	106		/	

## CH2M HILL Soil Sampling Bench Sheet Spring 2006

Project ID WCH		Project # 336761	AO.ZZ	
Site # 100-H RIPARIAN #	9_	Sample # J11JK5		·
Tray# 40		Tare Wt.	( <u>( )</u> gm.	
Total Dry Wt. 4954,7	gm.	Net Dry Wt. 34	94.7 gm.	
ALL SAMPLES COLLECTED E	BELOW CONSIST OF	50 SAMPLE INCREME	ENTS	
Analyte	Sample Time	Grams Needed	Grams Collected	Initials
[CFA		400	1	1 12
GEA	14:00	400 g	405.45	Km
RAD STR ICP MET		30 g	30.40	<del> </del>
HEX CR		30 g	30.23	<del>                                     </del>
SEMI VOA		30 g	30.09	<del>                                     </del>
PEST		30 g 30 g	30,10	<del></del>
PCB	<del></del>	30 g	30.46	<del>-                                    </del>
IC ANION		30 g	31.23	<del></del>
NO2/NO3		30 g	30.61	
ICP MET MS		30 g	30.40	1
ICP MET MSD		30 g	30.39	
HEX CR MS		30 g	30.05	
HEX CR MSD		30 g	30.56	
	· · · · · · · · · · · · · · · · · · ·		<u> </u>	
				<del></del>
			<u> </u>	
				<del>-</del>
			•	
Comments:				
		· · · · · · · · · · · · · · · · · · ·		
Name (print): Katic Mc	· ×ey	Signature: Kace	Marge	
Sub-Sampled Date: 04/10	100		10	

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC) Date: Purchase Order / Project# SAF# / SOW# / Release #: LvLI Batch #: Sample Custodian: NOTE: EXPLAIN ALL DISCREPANCIES Airbill# 65 Samples Hand Delivered of Shipped Custody seals on coolers or shipping D No □ No Seals Comments container intact, signed and dated? 3. Outside of coolers or shipping containers are □ No free from damage? 4. All expected paperwork received (coc and □ No other client specific information) sealed in plastic bag and easily accessible? Temp 17-4 Cooler# Samples received cooled or ambient? Custody seals on sample containers intact, U No ☐ No Scals signed and dated? coc signed and dated? □ No Sample containers are intact? \$005 M PO ANISHS NOT REE'D REC ONE EACH FOR FOCT FOR STRONT IUM 9. All samples on coc received? All samples received on coc? 8990 TITI SE DECORDING TO LABOL 10. All sample label information matches coc? 2 Yes □ No 11. Samples properly preserved? ĠŶes □ No 12. Samples received within hold times? □ No Short holds taken to wet lab? 13. VOA, TOC, TOX free of headspace? O Yes □ No DAVA 14. QC stickers placed on bottles designated by □ No. DINA client? 15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within

DX6

□ No

Discrepancies



policy. See reverse side for policy)

16. Project Manager contacted concerning

outside criteria)

discrepancies? name/date (or samples